

Energy Tidbits

Aug 29, 2021

Produced by: Dan Tsubouchi

Hurricane Ida About to Hit as Cat 4 at New Orleans, Impact To People, Property, Power, Oil, Etc Will Be The Monday Story

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector and not just a specific company results. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

1. Hurricane Ida is Cat 4 at 150 mph and about to make landfall at New Orleans, shut in 1.65 mmb/d oil & 1.89 bcf/d, will need to see if any damage and power outages to platforms, refineries, and terminals/ports. ([Click Here](#))
2. Not clear how much of Pemex's 421,000 b/d is back on following last weekend's offshore fire. ([Click Here](#))
3. OPEC+ meets Wednesday, very little chatter from ministers other than Kuwait this morning saying should reconsider the planned 400,000 b/d increase ([Click Here](#))
4. Israel PM Bennett goal is to "permanently keep Iran away from ever being able to break out to nuclear weapon" ([Click Here](#))
5. German court deals set back to Nord Stream 2 expected start up pre winter. ([Click Here](#))
6. Please follow us on Twitter at [LINK](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK](#).

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Natural Gas – Natural gas injection of 29 bcf, storage now -563 bcf YoY deficit

The EIA reported a 29 bcf injection (vs 39 bcf injection expectations) for the Aug 20 week, which was below the 5-yr average injection of 44 bcf, and below last year's injection of 45 bcf. Storage is 2.851 tcf as of Aug 20, increasing the YoY deficit to 563 bcf from 547 bcf last week and storage is 15 bcf below the 5 year average vs 4 bcf above last week. There is just over 10 weeks to go before start of winter gas season (Nov 1) so storage should continue to be a strong positive to HH prices especially with some shut-in production from Hurricane Ida. Below is the EIA's storage table from its Weekly Natural Gas Storage Report. [\[LINK\]](#)

**YoY storage at
-563 bcf YoY
deficit**

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	08/20/21	08/13/21	net change	implied flow	Year ago (08/20/20)		5-year average (2016-20)	
					Bcf	% change	Bcf	% change
East	661	645	16	16	771	-14.3	716	-7.7
Midwest	790	765	25	25	901	-12.3	806	-2.0
Mountain	188	188	0	0	212	-11.3	192	-2.1
Pacific	241	240	1	1	307	-21.5	286	-15.7
South Central	970	984	-14	-14	1,223	-20.7	1,040	-6.7
Salt	229	244	-15	-15	334	-31.4	257	-10.9
Nonsalt	742	741	1	1	889	-16.5	782	-5.1
Total	2,851	2,822	29	29	3,414	-16.5	3,040	-6.2

Totals may not equal sum of components because of independent rounding.

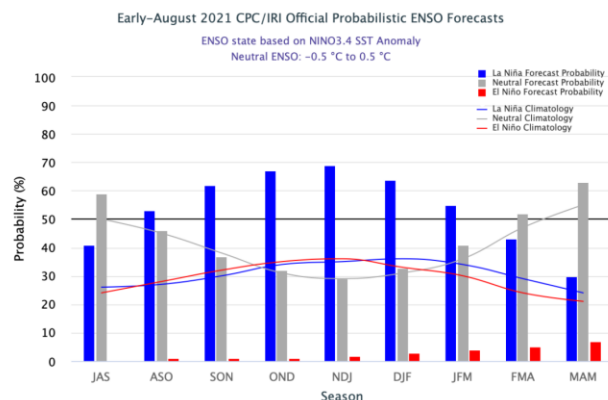
Source: EIA

Natural Gas – 99% probability for La Nina/Neutral in key hurricane ASO season

The CPC/IRI released its updated monthly El Nino/La Nina outlook, which is issued on the 2nd Thurs of every month [\[LINK\]](#). The oil and gas focus is for the peak hurricane season Aug/Sept/Oct and the call is still for a La Nina/Neutral ASO with almost zero chance for El Nino conditions. Focus on El Nino forecasts is on the summer and to the key hurricane season. The trends continue to be La Nina/Neutral for the key Aug/Sept/Oct, which is the peak of Atlantic hurricane season. The consensus forecast for ASO is 53% La Nina (was 45%), 46% Neutral (was 51%), and only 1% El Nino (was 4%). Again, weather is never 100% the same, but El Nino summers are normally associated with low Atlantic hurricane seasons, whereas La Nina/Neutral conditions are more likely normal hurricane seasons or, in the case this year, continued forecasts for above average Atlantic hurricane season.

**Almost certain La
Nina/Neutral
conditions for key
hurricane ASO
season**

Figure 2: Early-Aug NOAA El Nino/La Nina Outlook



Source: NOAA

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Natural Gas – Early outlook calling for a La Nina/Neutral winter

As it's late August, we are now starting to look ahead to the winter for natural gas. The big fear for gas markets is that more worry about the risk of a warm winter if it is El Nino condition. The new CPC/IRI updated El Nino/La Nina outlook probability forecast for Dec/Jan/Feb is 64% La Nina, 33% Neutral and 3% El Nino. Correlations are not 100% but the fear in El Nino winters is that it is warmer than normal. Whereas, La Nina winters are typically viewed more likely normal, however as noted below, La Nina winters can be warm.

Early outlook forecasts La Nina winter

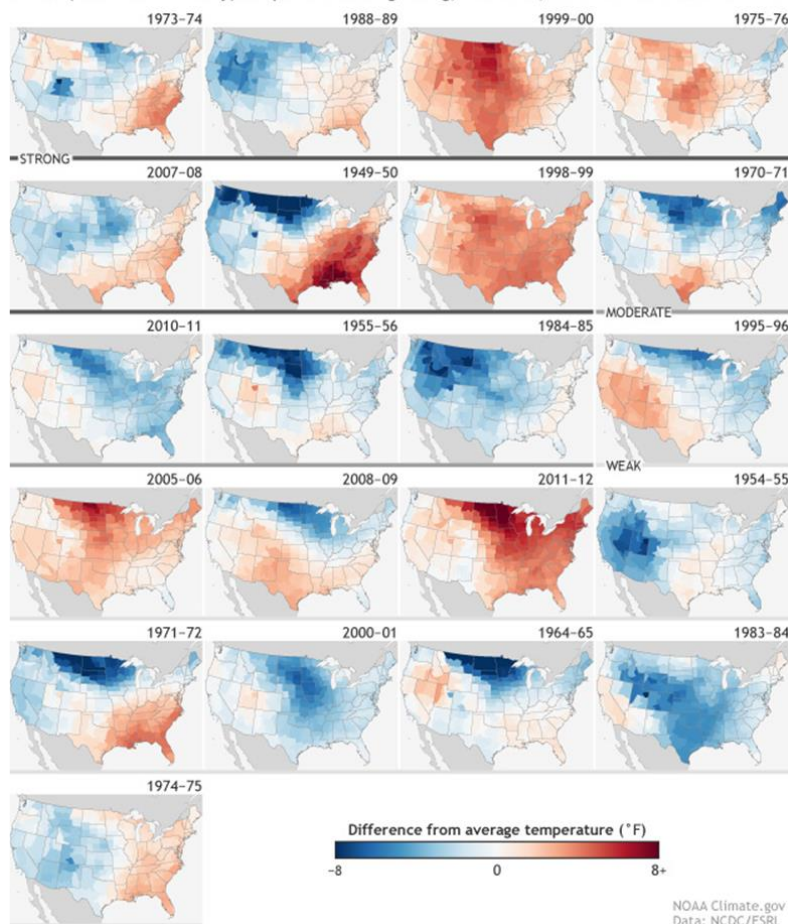
Natural Gas – But La Nina correlations to cold winters are far from 100%

La Nina winters are more often normal to colder than normal than a warmer winter. But we remind of a Oct 6, 2017 NOAA brief *"Temperature patterns during every La Niña winter since 1950"*, which looked at all La Nina winters from 1950 thru 2016/17, classified them as strong, moderate or weak La Ninas, and then showed the average winter (Dec thru Feb) temperature map. We checked this weekend and the link still works [\[LINK\]](#). The bottom line is that it may slightly favor a normal to colder than normal winter, but there have some been near record high temperature La Nina winters. Below is the NOAA graphic. Our Supplemental Documents package includes the NOAA blog.

La Nina winters are unpredictable

Figure 3: Winter (Dec-Feb) Temp in Strong, Moderate And Weak La Ninas 1950 - 2017

Winter (December-February) temperature during strong, moderate, and weak La Niñas since 1950



Source: NOAA

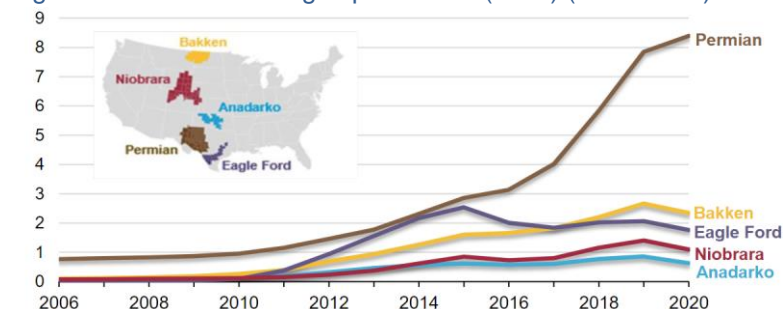
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Natural Gas – Associated natural gas production declines for the first time since 2016

On Monday, the EIA posted a blog “Associated natural gas production declines in 2020, following three years of growth” [\[LINK\]](#), which highlighted that associated natural gas production had declined for the first time in four years in 2020. Associated natural gas produced in America’s five crude oil producing regions averaged 14.2 bcf/d in 2020 (down 4.1% YoY vs 2019), which compares to a 9.2% YoY drop in oil production in these areas. Natural gas production made up 37.7% of overall production, with associated gas averaging 14.2 bcf/d. Before 2020, the share of associated gas had been increasing due to growing levels of new crude production. The much greater production decrease in oil was expected. The EIA doesn’t specifically say it, but, for the past few years, we have reminded that the share of associated natural gas in an oil play with associated natural gas always increases over time. This is the case in all of these plays. It therefore makes sense that the YoY decrease in 2020 in associated natural gas was far smaller than the drop in crude production in the year. Below is a chart tracking the production of associated natural gas since 2006, which shows the Permian’s major growth, producing 50% of total US associated gas in 2020. Our Supplemental Documents Package includes the EIA blog.

2020’s drop in crude production = decrease in associated gas production

Figure 4: US associated gas production (bcf/d) (2006-2020)

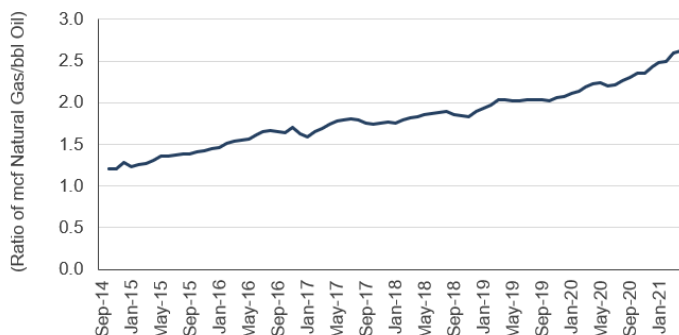


Source: EIA, SAF

North Dakota gas-oil ratio increases as Bakken matures

Every month, we highlight this increasing share of associated natural gas in the Bakken when we report on the monthly North Dakota oil production data. Our Aug 15, 2022 Energy Tidbits wrote “One of the long term trends that we have been highlighting for all of the US tight/shale oil plays that produce associated natural gas and NGLs is that, over time, the percentage of natural gas increases in the production. This is the case for all the oil plays with associated natural gas, not just the Bakken. We see this clearly in North Dakota where the gas-oil ratio continues to increase. The gas-oil ratio in June was 2.64, vs June 2020 of 2.21, June 2019 of 2.02, June 2018 of 1.88, and June 2017 of 1.79. Below is our running graph of North Dakota gas-oil ratio updated for the new NDIC April production data.”

Figure 5 North Dakota Gas-Oil Ratio



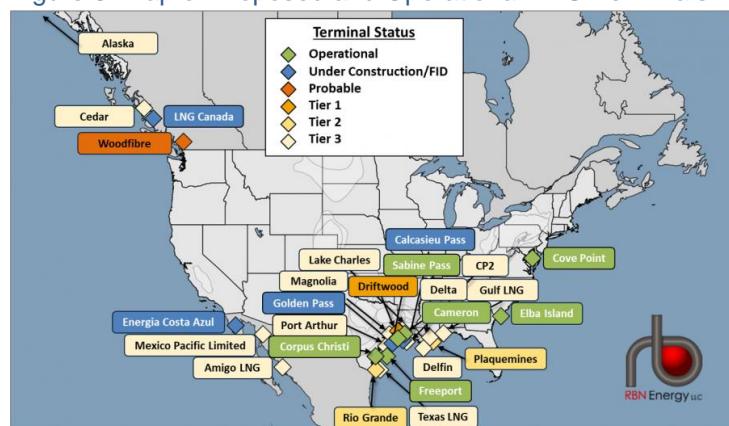
Source: NDIC, NDPA

Natural Gas – RBN: Updated LNG FID probability more bullish

On Wednesday, RBN posted its blog “*You Can Make It If You Try - New Contracts Inch North American LNG Projects Closer To FID*” [\[LINK\]](#), which is its regular updated review of the landscape of potential US and Canada LNG projects. Our June 13, 2021 Energy Tidbits highlighted their prior update. At that time, there were only 2 “Probable” FIDs: Woodfibre and Cameron T4-5. Since the update, RBN is a little more bullish on the possibility of several projects reaching FID due to an increase in new longer-term contracts. However, RBN also raises the issue that 10-yr contracts still make it tough to finance projects when historically financing has been done far more on 20-year deals. Nonetheless, more than 576.3 bcf of pre FID deals have been committed, so outlook for new project FIDs is starting to look a little more bullish. We continue to find it interesting that RBN does not look at LNG Canada Phase 2 as possible LNG project. Below is a map of all of the proposed and operational LNG terminals, with RBN’s assigned degrees of probability of them reaching FID. Our Supplemental Documents package includes the RBN blog.

**RBN more bullish
on LNG FID**

Figure 6: Map of Proposed and Operational LNG Terminals



Source: RBN

Natural Gas – Mexico’s natural gas production still stuck below 5 bcf/d, -3.6% YoY

On Tuesday, Pemex reported its oil and gas data for July. Pemex reported natural gas production of 4.725 bcf/d, which was down -3.6% YoY and was effectively flat, down 0.04% MoM, from June. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. As a result, Mexico has relied on

**Mexico natural gas
still stuck below 5
bcf/d**

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imports from the US which are reaching record levels; US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. We continue to believe Pemex is in the “natural gas production [that] is stuck below 5 bcf/d” phase, as it has since Sept 2017. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Figure 7: Mexico Natural Gas Production (bcf/d)

Natural Gas Production bcf/d	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	6.584	6.162	5.326	4.910	4.648	-5.3%	5.005	7.7%	4.848	-3.1%
Feb	6.676	6.122	5.299	4.853	4.869	0.3%	4.942	1.5%	4.854	-1.8%
Mar	6.558	6.030	5.383	4.646	4.857	4.5%	4.946	1.8%	4.839	-2.2%
Apr	6.257	5.921	5.334	4.869	4.816	-1.1%	4.827	0.2%	4.671	-3.2%
May	6.202	5.841	5.299	4.827	4.841	0.3%	4.460	-7.9%	4.730	6.1%
June	6.390	5.881	5.253	4.840	4.843	0.1%	4.754	-1.8%	4.727	-0.6%
July	6.374	5.785	5.216	4.856	4.892	0.7%	4.902	0.2%	4.725	-3.6%
Aug	6.366	5.686	5.035	4.898	4.939	0.8%	4.920	-0.4%		
Sept	6.477	5.619	4.302	4.913	5.017	2.1%	4.926	-1.8%		
Oct	6.397	5.583	4.759	4.895	4.971	1.6%	4.928	-0.9%		
Nov	6.316	5.515	4.803	4.776	5.015	5.0%	4.769	-4.9%		
Dec	6.236	5.380	4.811	4.881	5.024	2.9%	4.846	-3.5%		

Source: Pemex

Natural Gas – AfDB believes Total Mozambique LNG can resume in 12-18 mths

It's still early, but at least more are now believing that Mozambique will be able to re-establish security and safety to allow for a return to development of TotalEnergies Mozambique LNG Phase 1 of 1.7 bcf/d. On Friday, Bloomberg reported on comments from the President of the African Development Bank (AfDB), Akinwumi Adesina, who believes that the changing view of security should allow for TotalEnergies LNG project could resume construction within 12-18 months thanks to the African armies' success in stamping out the insurgency. Adesina told Reuters that he did not expect this interruption to negatively impact the LNG project's long-term viability, saying *“The return of security in that place will give assurances to Total and others to return. In one year to 18 months, I expect it to be stabilized enough to get back on track”*. The African armies are making headway. This timing makes sense to us – resume the project in 12-18 months from now would be delay of approx. 18 to 24 months from when TotalEnergies stopped construction. Security hasn't yet been fully re-established and we expect Total will want to see some period of stability thereafter before resuming construction. Recall, previously Total had shut down development for 3 months due to the security risk and then had restarted on Wednesday, March 24, 2021. Then there were 3 days of violence and attacks followed, and Total suspended operations on the Saturday and started to pull all staff out of Mozambique. That was when construction stopped and then a month later Total declared force majeure. After what happened last time, it makes sense that TotalEnergies would want to have a longer period (ie. 6 months or so) of perceived security/stability before agreeing to restart. So assuming Mozambique can re-establish that security in Q1/22, it makes sense that Total would wait until at least Q3/22 before resuming work. Also, when Total declared force majeure, they thought it would be at least a year before any decision to lift force majeure. Our Supplemental Documents packaged includes the Bloomberg report.

**Total Mozambique
LNG force majeure**

Looks like Rwandan troops were the game changer for Mozambique LNG

Our recent (Aug 15 and Aug 22, 2021) Energy Tidbits highlighted how Rwandan troops have led the charge to force the rebels out of the key port cities and raise the question if Mozambique calling in Rwandan troops in late July will turn out to be the game changer to bring back and establish sufficient security for TotalEnergies to lift force majeure in early 2022. This week, the reports continue to note the Rwandan and Mozambique forces are reclaiming more territory and forcing the rebels even further into the jungle. Clearly, the Rwandan troops are making a difference. On Aug

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13, we tweeted [\[LINK\]](#) “Was July a game changer for #TOT #XOM in Mozambique #LNG? Give a chance for force majeure removal in early 2022? Rwanda troops weren't under international scrutiny, aggressively fought and pushed out rebels from key ports/towns. Thx @AntonySquazzin”. And it seems like the Rwandan troops will be sticking around, which we have to believe will make a big difference for Mozambique to establish and maintain security. We look to the Club of Mozambique for local Mozambique news. On Wednesday, they reported [\[LINK\]](#) “Rwandan and Mozambican forces have surrounded the Islamic State-linked terrorist group's last major areas of operation, Siri I and Siri II, according to reports. What appears as the joint forces' final major military push against the insurgents in Mozambique's northernmost Province of Cabo Delgado comes barely four days after the joint forces seized Mbau, another key insurgents' stronghold after a fierce battle. Also, more recently, the joint forces on August 8 dislodged the terrorists from Mocimboa da Praia, a key Mozambican port city that had been headquarters of the Islamic State-linked terrorists for more than three years.”

Reminder Mozambique LNG delays are 5 bcf/d, not 1.7 bcf/d Total Phase 1

We think it is important to note that the delays to TotalEnergies Mozambique Phase 1 are more than just a delay to the 1.7 bcf/d Phase 1, its actually a delay of 5 bcf/d. This was the reason why, on April 28 2021, we posted a 7-pg blog “Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?” [\[LINK\]](#) We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but is now not expected to have a FID decision until 2022 at the earliest. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Our blog reminds that even if Total makes a restart development decision in 12 months, it will take months just to get back to where they left off including rehiring services so any return to where they were in the construction process is at least more likely 18 months at a minimum. This is going to create a bigger and sooner LNG supply gap and the reality is that the only projects that can step up in any reasonable time frame will be brownfield LNG projects. Its why we also said what about LNG Canada Phase 2. There is much more in the 7-pg blog. Our Supplemental Documents package includes our blog.

Natural Gas – India July natural gas production up MoM at 3.29 bcf/d

Unfortunately, we are now in a period where YoY comparisons aren't necessarily relevant given 2020 was hit by the initial global wave of Covid causing interruptions in everything including oil and gas production. The key India natural gas theme for the past few years has been that India has not been able to grow its domestic natural gas production so any increase in natural gas consumption means equal increase in LNG imports. India's Petroleum Planning and Analysis Cell released their monthly report for July natural gas and oil statistics last Thursday [\[LINK\]](#). India's domestic natural gas production peaked in 2010 at 4.6 bcf/d.

**India natural gas
production +0.78%
MoM**

India's domestic natural gas production was up 18.4% YoY from 2.78 bcf/d in July 2020 to 3.29 bcf/d, up from 3.27 bcf/d in June. The YoY increase is not necessarily reflective of significant growth, more so a return to pre-pandemic production, as April 2019 to March 2020 production averaged 3.02 bcf/d. India has consistently struggled to grow domestic natural gas production with 2018-2019 production averaging 3.18 bcf/d, declining to 3.02 in 2019-2020 and averaged 2.78 bcf/d 2020-2021. This means that until they can grow production, any incremental natural gas demand is likely to be met by increasing LNG imports. Our Supplemental Documents package includes excerpts from the PPAC monthly package.

Natural Gas – India July LNG imports down 14.9% YoY to 2.88 bcf/d, up 5.6% MoM

India is always viewed as an extremely price sensitive buyer in terms of its LNG imports, which was exemplified in their 2020-2021 import data. India had ramped up exports from June to October 2020, taking advantage of low LNG prices to fill their stocks. Imports began to decline in November as LNG prices began to rise, with the price trajectory ramping up in late Dec and reaching record levels January. This resulted in India LNG imports declining from a 2020-2021 peak of 3.84 bcf/d in Oct 2020 to just 2.85 bcf/d in Jan 2021. Despite LNG imports normalizing in March and April to 3.06 bcf/d and 3.12 bcf/d, respectively, they have since decreased, with imports in July of 2.88 bcf/d, down 14.9% YoY due to abnormally high spot prices. Note, imports in July were up slightly by 5.6% MoM from 2.73 bcf/d in June.

**India LNG imports
+5.6% MoM**

Natural Gas – Japan LNG Imports in July hurt by high LNG prices

Japan Ministry of Finance released its July LNG import data last Thursday [\[LINK\]](#). Japan's July LNG imports were 9.58 bcf/d, up +2.5% YoY and up +4.9% MoM from 9.13 bcf/d in June. It was a warm July which should have driven strong LNG imports, especially with the Olympics. However, as seen in the major Asian LNG buyers, record/near record high LNG prices led to reduced spot cargoes where possible. The avoid high price spot LNG shows up by Japan's thermal coal imports in July were +10.9% YoY and a huge +27% MoM. Below is a temperature map of June and our table that tracks Japan LNG import data.

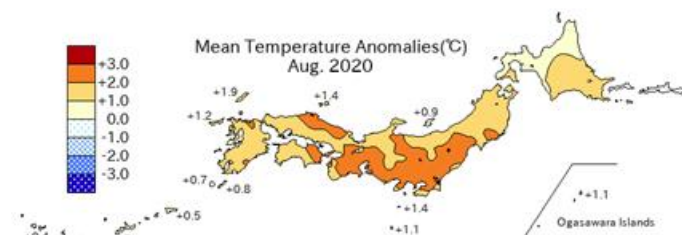
**Japan July LNG
imports +2.5% YoY**

Figure 8: Japan Monthly LNG Imports

bcf/d	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	13.06	11.22	12.85	12.79	11.69	-8.7%	11.63	-0.5%	12.48	7.3%
Feb	13.26	12.30	13.36	14.23	12.61	-11.4%	10.99	-12.8%	13.84	25.9%
Mar	12.60	12.62	12.61	12.28	11.30	-8.1%	11.16	-1.2%	11.04	-1.1%
Apr	10.56	10.21	10.52	8.97	9.00	0.3%	8.31	-7.7%	7.96	-4.3%
May	8.91	8.55	9.66	9.92	8.62	-13.1%	7.09	-17.7%	7.67	8.1%
June	10.61	10.02	9.90	8.88	8.32	-6.3%	8.42	1.2%	9.13	8.5%
July	10.77	10.19	10.19	10.55	10.56	0.1%	9.35	-11.5%	9.58	2.5%
Aug	10.93	11.96	11.24	11.73	9.45	-19.5%	9.04	-4.3%		
Sept	11.06	10.67	9.31	10.04	10.30	2.6%	10.41	1.0%		
Oct	9.38	9.73	9.50	10.12	9.75	-3.6%	9.20	-5.7%		
Nov	10.71	12.07	10.26	10.15	10.03	-1.2%	9.63	-4.0%		
Dec	12.51	11.69	12.31	11.23	10.54	-6.2%	11.96	13.4%		

Source: Japan Ministry of Finance

Figure 9: JMA July 2021 Temperature Recap



Source: Japan Meteorological Agency

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Natural Gas – Japan: Hot end to Aug, but returning to normal temperatures in Sept

It looks like Japan's hot summer is coming to an end, which will likely not offer the same support for LNG prices as the summer did. Weather always changes and there is no certainty of that the forecasts will be accurate. However, the last week has seen a warm outlook for Japan for the next 30 days. And it looks like a slight cooling off from the previous regional trend in July/Aug – cold in the north, a little above normal in the centre, and then normal in the south. It will be warmer than normal as we enter Sept but then the forecast reverts to normal in latter weeks of Sept. The Japan Meteorological Agency issued its updated month ahead weather forecast for Aug 28 – Sept 27 on Thursday [\[LINK\]](#) Below is the current JMA forecast for the remainder of Aug and into Sept.

Hot summer in Japan coming to an end

Figure 10: JMA Temperature Probability Forecast for Aug 28 – Sept 27



Source: Japan Meteorological Agency

Natural Gas – Gazprom loses German court ruling, puts in-service data in doubt

There was uncertainty raised this week on Nord Stream 2 start up, which meant it was a good week for Europe gas prices as markets worry about the start date. Nord Stream 2 lost a key court ruling in Germany and it isn't clear what this will do to a delay to the expected in service before Nov 1, 2021. The court ruling doesn't look like it will stop completion of construction but the in-service data isn't clear. On Wed, we tweeted [\[LINK\]](#) "Positive for global #LNG #NatGas prices this winter if #NordStream2 5.3 bcf/d capacity doesn't start for Nov 1 as its the biggest relief valve to global prices. Better hope its not a cold winter in Asia/Europe. Good read from @kmatusek @vanessadezem @SStapczynski". Europe better hope for a warm winter given how high natural gas prices now even with the peak of summer demand gone. On Wednesday, Bloomberg, and others reported on the ruling by a Dusseldorf Higher Regional Court that "dismissed a bid by Gazprom to overturn the German Network Agency's decision to impose the EU measures, a spokesman for the tribunal said by phone. While the ruling means that Nord Stream 2 could be fined if it fails to comply with the EU regulation once gas flows, it doesn't have an impact on the construction of the project, which was licensed under a different set of rules and is expected to be concluded this month. Technically, the EU measures also don't bar starting the flow of gas, but Gazprom would need to restructure Nord Stream 2, a step that could cost time." Our Supplemental Documents package includes the Bloomberg report.

Nord Stream 2 in-service looks delayed

Figure 11: Nord Stream 2, ~5.3 bcf/d capacity



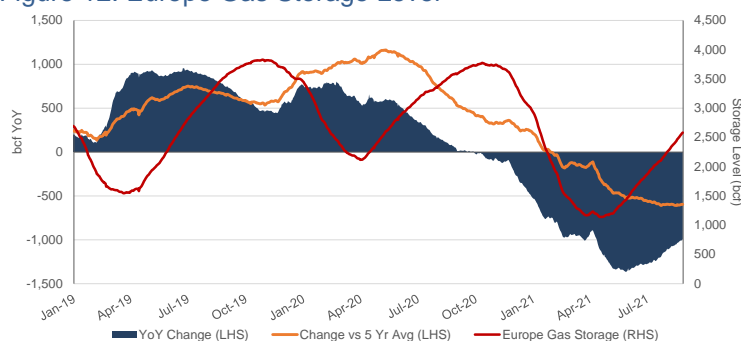
Source: Gazprom

Natural Gas – Europe storage 65.72% full vs 5 year average of 82.01%

Summer will soon be ending and the outlook has moved to how natural gas is set up for the winter. It's been a great summer for Europe gas prices – high Europe demand, strong Asian prices continue to preferentially attract LNG cargos, and very low gas storage levels will end summer refill season at hugely lower YoY levels. The set up for winter natural gas prices in Europe looks strong. The key indicator for winter Europe natural gas prices and also global LNG prices is Europe storage. Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1. This 65.77% decline since Nov 1 compares to the 5 yr average that would be down 53.99% in the same period or to last winter that was only down 43.29% in the same period. We are now seeing storage starting to build, but the storage build is slow for the above reasons, with storage as of June 3 being up 9.64% since April 19, which looks to be the bottom. Storage as of Aug 26 is 65.72%, 25.35% less than last year of 91.07% and 16.29% below the 5 yr average of 82.01%. Europe storage levels this summer will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of YoY change in net LNG flows to NW Europe.

Europe gas storage 65.72% full

Figure 12: Europe Gas Storage Level



Source: Bloomberg

Oil – US oil +5 WoW at 410 oil rigs

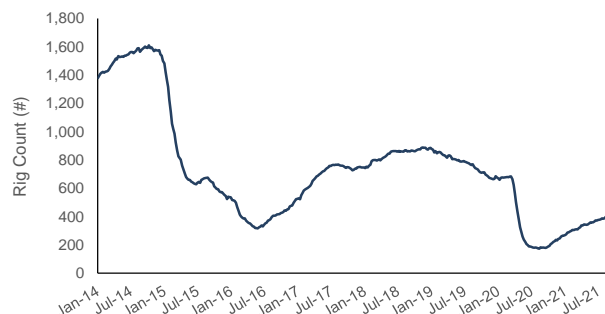
Baker Hughes reported its weekly rig data on Friday. This week US oil rigs were up +5 rigs WoW at 410 rigs. No particular basin jumps out but rather its continued strong oil prices above \$65 and HH near \$4 is likely leading to the higher rig counts in oil plays with

US oil rigs +5 WoW

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associated natural gas; plus, there is the need to replenish DUCS. Oil rigs have been on a strong recovery path and are +238 off the bottom of 172 in the Aug 14/2020 week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 273 to 410 oil rigs (-39.97%). Below is our graph of Baker Hughes US oil rigs. Below is our graph of US oil rigs since 2020, which highlights the big decreases in Permian and Bakken oil rigs.

Figure 13: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – Frac spreads +4 to 240 as of Aug 27

Every week, Mark Rossano (C6 Capital Holdings) posts a YouTube recap of frac spreads for the week on the Primary Vision Network. [\[LINK\]](#) US frac spreads were +4 to 240 as of Aug 27. Rossano said “a lot of it was driven by the Permian”, also had a little bit in DJ Basin. Permian is where he should see most of the activity, but should start to see Haynesville and Eagle Ford increase. On the Marcellus, Rossano noted natural gas production has been solid, pricing is currently \$4.37, we have to think about we’ve been here before, when you turn to the curve it always gets thrown out by what about the weather, it always comes down to what is the weather going to do, we’ve been in this very bullish point and then all of a sudden had a really warm winter. He said Permian is actually back to normal type levels when consider the advancements in completions. Rossano expects spreads to have steady grind higher, another 10 to 12 spreads over the next couple weeks and get into middle of September. Note he stopped providing his frac spread graphs for free in July. While he has reduced the amount of specifics in his commentary, we can at least get the insight on the total frac spreads

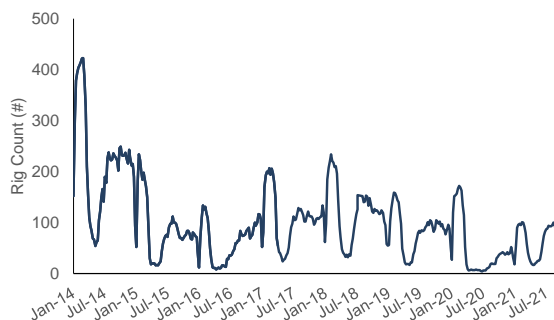
Frac spreads +4 to 240

Oil – Total Cdn rigs -9 to 147 total rigs and +93 rigs YoY

Total Cdn rigs were -9 this week to 147 total rigs. Cdn oil rigs were -10 at 85 rigs. Cdn gas rigs were +2 to 62 gas rigs. Misc was -1 to 0. Total rigs are now +134 since the June 26, 2020 all-time low. We are not surprised to see a pullback in Cdn rigs as normally late Aug/early Sept sees a small decline. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 19 and Cdn gas rigs were 35 for a total Cdn rigs of 54, meaning total Cdn rigs are +93 YoY and total rigs are down -3 vs 2019. Below is our graph of Baker Hughes Cdn oil rigs.

Cdn rigs -9 WoW

Figure 14: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production flat WoW at 11.4 mmb/d

US oil production was flat at 11.4 mmb/d for the Aug 20 week, with Lower 48 production unchanged at 11.0 mmb/d. US oil production remains up YoY at +0.6 mmb/d or 5.5% but is still down 1.7 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The August STEO forecast slightly raised its US crude expectations thru 2021 however it is still not returning anywhere near the Q4/19 peak of 12.88 mmb/d, with Q4/21 US crude of 11.30 mmb/d (down 1.58 mmb/d from peak). In US oil production commentary, the EIA wrote *“We expect production to be relatively flat through October before it starts rising in November and December and throughout 2022. Forecast U.S. crude oil production for 2022 averages 11.8 million b/d, up from 11.1 million b/d in 2021.”* The EIA DPR has the expectation of slight MoM increases in August/September. The EIA Form 914 May actuals were 281,000 mb/d above the weekly estimates average of 10.950 mmb/d for May, following a similar trend from April's +201,000 mmb/d underestimate.

**US oil
production flat
WoW**

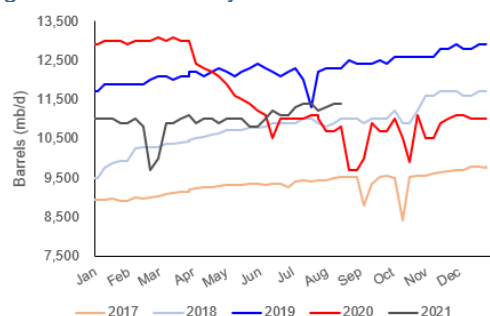
Figure 15: EIA's Estimated Weekly US Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2019-Jan	01/04	11,700	01/11	11,900	01/18	11,900	01/25	11,900		
2019-Feb	02/01	11,900	02/08	11,900	02/15	12,000	02/22	12,100		
2019-Mar	03/01	12,100	03/08	12,000	03/15	12,100	03/22	12,100	03/29	12,200
2019-Apr	04/05	12,200	04/12	12,100	04/19	12,200	04/26	12,300		
2019-May	05/03	12,200	05/10	12,100	05/17	12,200	05/24	12,300	05/31	12,400
2019-Jun	06/07	12,300	06/14	12,200	06/21	12,100	06/28	12,200		
2019-Jul	07/05	12,300	07/12	12,000	07/19	11,300	07/26	12,200		
2019-Aug	08/02	12,300	08/09	12,300	08/16	12,300	08/23	12,500	08/30	12,400
2019-Sep	09/06	12,400	09/13	12,400	09/20	12,500	09/27	12,400		
2019-Oct	10/04	12,600	10/11	12,600	10/18	12,600	10/25	12,600		
2019-Nov	11/01	12,600	11/08	12,800	11/15	12,800	11/22	12,900	11/29	12,900
2019-Dec	12/06	12,800	12/13	12,800	12/20	12,900	12/27	12,900		
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,100	03/20	13,000	03/27	13,000		
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,100		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,800		
2021-Jun	06/04	11,000	06/11	11,200	06/18	11,100	06/25	11,100		
2021-Jul	07/02	11,300	07/09	11,400	07/16	11,400	07/23	11,200	07/30	11,200
2021-Aug	08/06	11,300	08/13	11,400	08/20	11,400				

Source: EIA

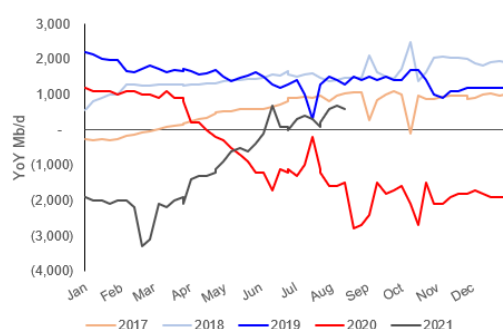
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Figure 16: US Weekly Oil Production



Source: EIA, SAF

Figure 17: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – DOE announces sale of 20 mmb from SPR

On Tuesday, the US Department of Energy (DOE) announced the sale of 20 mmb of crude oil from the Strategic Petroleum Reserve (SPR) [\[LINK\]](#). The current inventory in the SPR is 621.3 mmb including 253.2 mmb sweet and 368.1 mmb sour. We previously highlighted in our June 29 Tidbits that in Biden's Bipartisan Infrastructure Framework factsheet [\[LINK\]](#) one of the proposed sources of financing was "Strategic Petroleum Reserve sale", and no volume was disclosed by the White House. At the time, Republicans had estimated it at ~82 mmb, or \$6bn at the historical oil prices. We predicted the volume to be closer to 100 mmb, which would represent around 16% of current reserves, as the government can use every billion they can find. It is still unclear what the exact volume will be, the DOE has begun to release some the barrels to the market. Up to 8 mmb will be released from Bryan Mound, Big Hill, West Hackberry respectively, and 1 mmb will be released from Bayou Choctaw. Deliveries are expected to take place between October 1, 2021 and December 15, 2021. Below is the current Dept of Energy SPR inventory [\[LINK\]](#). Our Supplemental Documents package includes the DOE announcement and DOE background info on the SPR sites.

DOE to sell 20 mmb from SPR in Q4/21

Figure 18: Strategic Petroleum Reserve



Source: US Department of Energy

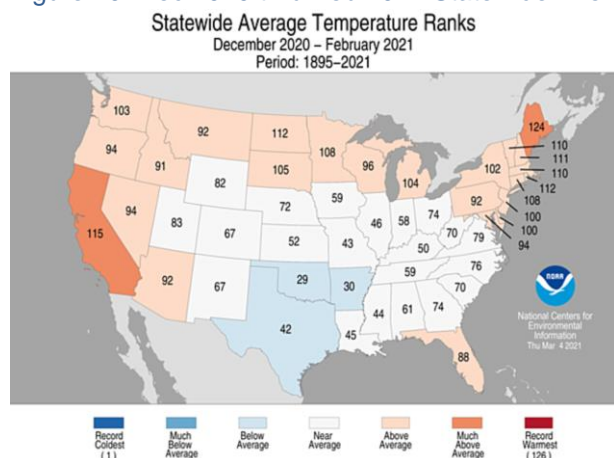
Oil – EIA: increased propane consumption in Midwest, better hope Line 5 isn't shut

On Wednesday, the EIA posted its blog “*EIA expects increased U.S. propane consumption this winter, especially in the Midwest*” [\[LINK\]](#) and “*we expect 3.4% more U.S. propane consumption this winter compared with last winter, reflecting greater use of propane as a petrochemical feedstock, outpacing expectations of below-normal demand for space heating because of a warmer weather forecast. This pattern is especially pronounced in the Midwest, where 42% of U.S. homes using propane as a primary space heating fuel are located and where 90% of the U.S. corn crop is grown.*” As noted below, it was extremely hot last winter in the Midwest with many of the northern states being among the warmest in the last 126 winters. The one thing that caught our eye on the blog was something that wasn't included – any mention of the risk to supply this winter if Michigan can somehow stop Enbridge Line 5. If that happens, it won't be pretty for propane supply in northern Michigan. Enbridge notes “*Line 5 supplies 65% of propane demand in Michigan's Upper Peninsula, and 55% of Michigan's statewide propane needs*”, and “*Michigan would face a 756,000-US-gallons-a-day propane supply shortage, since there are no short-term alternatives for transporting NGL to market.*” Our Supplemental Documents package includes the EIA blog and the Enbridge Line 5 impact.

**Propane
consumption up
in Midwest**

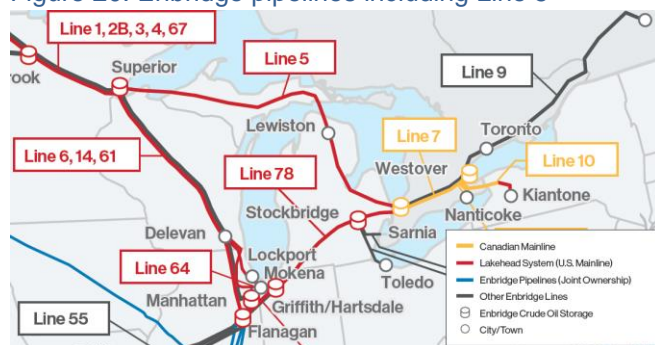
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Figure 19: Dec 2020 thru Feb 2021 Statewide Average Temperature Ranking



Source: NOAA

Figure 20: Enbridge pipelines including Line 5



Source: Enbridge

Oil – Unfortunately, we still expect hits to Cdn oil sands from Liberals

There are just over 3 weeks to go until the Sept 20 election but, unfortunately, we still expect to see hits to the Cdn oil and gas sector, in particular the oil sands. On Wed, Trudeau surprised with his announcement of a double hit on big banks and insurance companies. We tweeted [LINK](#) “Cdn #Oil #NatGas co's watch out. Big banks are easy target. Note why #Trudeau "ask" for double hit to big banks - done very well post Pandemic. #Oil #NatGas is already at risk as fossil fuels, but now also making big profits. Other logical target higher income/wealthy Cdns #OOTT”. We had the opportunity to give some comments to National Post Geoff Morgan's Friday report “Liberals shift target to Big Banks from Big Oil, but there's little relief in oilpatch” [LINK](#). Geoff had comments from a number of oil linked people asking if the Liberals double hit on the Big Banks meant Big Oil was no longer the target. We must have given Geoff the blunt comments as the subtitle header was “‘Not for one moment do I believe that (Trudeau) has shifted away from Big Oil, in particular, the oilsands,’ says SAF Group's Dan Tsubouchi” and then later “‘I suspect sooner rather than later, as they need to stop the bleeding,’ he said. “Don't forget, Prime Minister Trudeau's kickoff speech said, ‘We think more ambition on climate change is needed now.’” Our Supplemental Documents package includes the National Post report.

**Did oil sands
escape more hits
from Liberals?**

Trudeau's G7 comments were a clear warning to Cdn oil, especially oil sands

The reason why we believe that there is most likely hits to come against oil and natural gas, especially the oil sands is what Trudeau said at his post G7 press conference on June 13.. Our June 20, 2021 Energy Tidbits wrote *"We are surprised that Alberta or the Cdn oil patch didn't at least criticize Trudeau, let alone raise up their arms, after hearing Trudeau's post G7 press conference. Our immediate reaction after hearing Trudeau was that this is not good and it is foretelling bad news to come from the Liberals. Last Sunday, we tweeted [\[LINK\]](#) "#OilSands. Note #Trudeau wouldn't even acknowledge the oil sands pathways to net zero, or say positive move but need to do more or move faster. not a good sign. have to worry it links to prior tweet #G7 May 21 warning re stranded assets risk. #OOTT" Trudeau is asked point blank on the new oil sands Net Zero by 2050 pathway and its good enough as a lot it is based on technology not yet available in scale and on sequestration. He gives a lengthy answer that doesn't even acknowledge the oil sands pathway, let alone whether it is good enough or realistic. No question he is ducking even any acknowledgement that it exists, which would seem to signal that he is not interesting in trying to work with that plan in any way. This seems to signal something tougher is coming. Politicians of all stripes never miss an opportunity to take credit for driving change. In reality, this was a lay up question for Trudeau to do so. He could have easily said I am glad the oil sands listened to what I am trying to build for Canada, they have jumped on board committing to a pathway to Net Zero by 2050, it's a good start but they need to move even faster and my government will be working with them to get them to be even more ambitious. But he didn't, rather he refused to even acknowledge any pathway to Net Zero existed. Clearly not a good sign. Our Supplemental Documents package includes the transcript we made of Trudeau's Q&A on this point and the Cdn oil sands pathway to Net Zero release."*

Oil – Again, no Wood Buffalo Covid update in oil sands facilities this week

As of our 7am MT news cut off, Wood Buffalo has not yet posted any update on Covid outbreaks in oil sands facilities. This has been the 2nd consecutive week with no update, whereas Wood Buffalo has been providing once a week updates. The last Wood Buffalo Covid update was the Wood Buffalo Aug 13 Covid update [\[LINK\]](#). From Aug 1 to Aug 13, there were 3,592 new cases in Alberta, but Wood Buffalo only saw 11 new cases. Wood Buffalo's update noted no changes to the 2 remaining Covid outbreak facilities in the oil sands – CNRL Albion and Suncor Fort Hills.

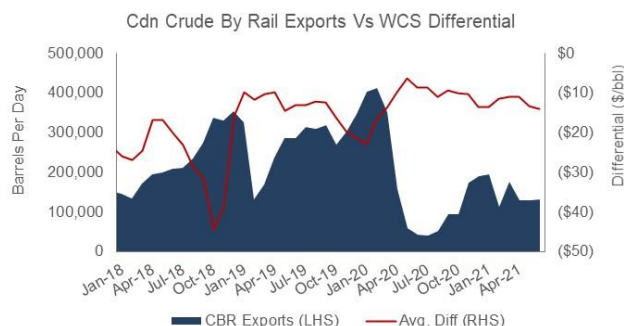
**No oil sands
Covid outbreak
update**

Oil – Cdn crude by rail exports up 3,618 b/d MoM to 131,624 b/d in June, up 207% YoY

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were +3,618 b/d MoM in June to 131,624 b/d vs 128,006 b/d in May [\[LINK\]](#). This puts June export volumes at +88,804 b/d YoY (+207%) vs June 2020 of 42,820 b/d. CBR volumes are +92,757 since the July 2020 bottom of 38,867 b/d, when COVID-19-fueled capital spending reductions and lower drilling activity in Western Canada were in full effect. June WCS-WTI differentials which remained around the \$13-\$14 range likely contributed to the slight MoM increase. Until the differentials exceed ~\$15, we should expect similar July rail volumes. Note that it's not just the differential, but the base WTI oil price starting point as well as transportation costs. Below is our graph of Cdn crude by rail exports compared to the WCS – WTI differential.

**Cdn crude by rail
exports increase
MoM**

Figure 21: Cdn Crude by Rail Exports vs WCS Differential



Source: Bloomberg, CER

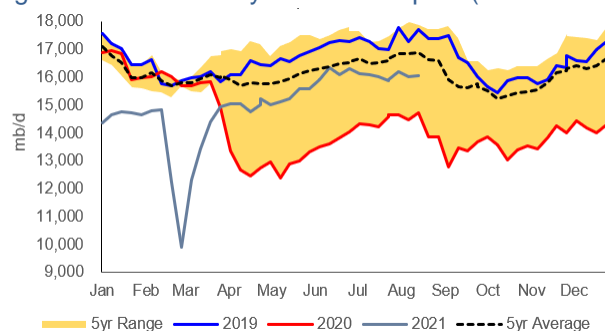
Source: Canadian Energy Regulator, Bloomberg

Oil – Refinery inputs +1.360 mmb/d YoY to 16.072 mmb/d, down 1.630 mmb/d vs 2019

Crude inputs to refineries were relatively flat this week, up by +0.066 mmb/d to 16.072 mmb/d, and are +1.360 mmb/d YoY, and are -1.630 mmb/d vs 2019. Refinery utilization was up by 0.2% this week at 92.4%, which is +10.4% YoY. Total products supplied (ie. demand) was up this week, with a +0.354 mmb/d increase to 21.817 mmb/d, the highest since March 2020. Motor gasoline was up +0.239 b/d to 9.572 mmb/d, perhaps the last hurrah of summer driving season. Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

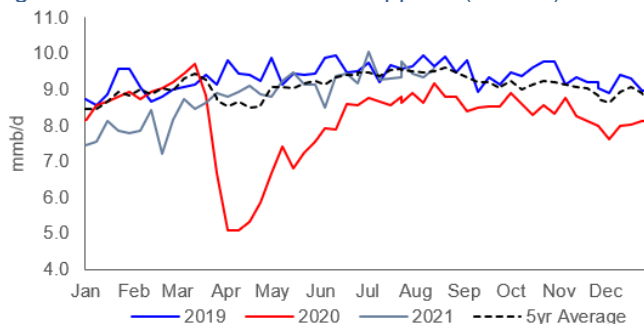
Refinery inputs still below the 5-yr average

Figure 22: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

Figure 23: US Motor Gasoline Supplied (mmb/d)



Source: EIA, SAF

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Oil – Imperial to produce renewable diesel at Strathcona refinery

Imperial Oil announced on Wednesday [\[LINK\]](#) that it plans to produce renewable diesel by 2024 at its Strathcona refinery. The company will construct a new complex which is expected to produce 20,000 b/d of renewable diesel from locally sourced and grown feedstocks. The project has not yet reached FID, but Imperial is in talks with both AB and BC governments and both of which have agreed to support the project under Part 3 of their low-carbon fuel legislation. Imperial did not give FID for the project as the project depends upon the government assistance, which we assume they are working to finalize. Brad Corson, Chairman, president & CEO of Imperial said about the project *“This world-class facility will be a significant value-generating, forward-looking project that brings together our proprietary technologies and refining scale to the benefit of the environment, the economy and local job creation. Today’s announcement further demonstrates Imperial’s commitment and support for Canada’s transition to lower-emission fuels, as well as Canada’s ambition to achieve net zero by 2050”*. Our Supplemental Documents package includes the Imperial announcement.

IMO adding renewable diesel complex at Strathcona

Adding renewable unit won’t reduce Imperial’s fossil fuel diesel output

Emma Graney of The Globe and Mail was able to add some great color to the Imperial announcement of adding the renewable diesel capacity. They reported on comments from Imperial vice-president Jon Wetmore writing *“Mr. Wetmore expects the new standards will shift diesel use in Canada from traditional to renewable, but that likely won’t make a dent in Imperial’s fossil fuel diesel production. If the company can’t sell its fossil fuel diesel here under the new regulations, Mr. Wetmore said, it will simply move the product to other markets where regulations lag behind Canada. “You can ship diesel on vessels going down to Mexico or Latin America and beyond,” he said. “We want to continue to run our fossil fuel facilities as full as we can.” While the fuel that will be produced at the facility is called renewable diesel, it won’t be emissions-free. It will be made using blue hydrogen (which itself comes from natural gas, using carbon capture), and will release emissions when combusted as a fuel. However, a recent analysis by the U.S. government’s National Renewable Energy Laboratory found, on average, renewable diesel reduces carbon-dioxide emissions by 4.2 per cent compared with petroleum diesel.”* Our Supplemental Documents package includes the Globe and Mail report.

Oil – Nigeria’s new 650,000 b/d Dangote refinery to be completed around year end

Nigeria’s massive new 650,000 b/d Dangote refinery, currently under construction and expected to be commissioned by January, will guarantee a market for Nigerian crude *“at a period when every country is struggling to find market for their crude oil”*, says Mele Kyari, a managing director of Nigerian National Petroleum Corp (NNPC). Bloomberg reported on Thursday that the giant refinery has struck a deal with the NNPC, with the NNPC’s equity participation being tied to it agreeing to buy at least 300,000 b/d of Nigerian production. This new refinery coming online will be a major tailwind for Nigeria’s oil industry, as it exported 1.6 mmb/d of crude this past year and has almost no operational oil refinery capacity at this time. The Dangote refinery is a massive refinery at a processing capacity of 650,000 b/d. To put its size in perspective, the top 3 largest refineries in the US are Motiva Enterprises’ Port Arthur refinery at 607,000 b/d of operable capacity, Marathon Petroleum’s Galveston Bay refinery at 593,000 b/d and Marathon Petroleum’s Garyville refinery at 578,000 b/d, as reported by the EIA [\[LINK\]](#). Our Supplemental Documents package includes the Bloomberg report.

Nigeria’s new 650,000 b/d refinery

Oil – US “net” oil imports up +0.426 mmb/d to 3.345 mmb/d

US “NET” imports were up 0.426 mmb/d to 3.345 mmb/d for the Aug 20 week, restoring part of the previous week’s decrease of -0.813 mmb/d. US imports were down -0.193 mmb/d to

US “net” oil imports +0.426 mmb/d WoW

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6.157 mmb/d. US exports were down big by -0.619 mmb/d to 2.812 mmb/d. The WoW decrease in US oil imports was driven by Nigeria and other countries. Some items to note on the by country data. (i) Canada was up this week by 0.498 mmb/d to 3.555 mmb/d, which is now only ~0.2 mmb/d below the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was down by 77,000 b/d to 0.286 mmb/d this week. (iii) Colombia was up this week, erasing last weeks loses, by +0.227 mmb/d to 0.370 mmb/d this week. (iv) Ecuador was up by 64,000 b/d at 261,000 b/d. (v) Iraq was down -73,000 b/d to 77,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was down by 34,000 b/d to 0.595 mmb/d.

Figure 24: US Weekly Preliminary Oil Imports By Major Countries

	June 11/21	June 18/21	June 25/21	July 02/21	July 09/21	July 16/21	July 23/21	July 30/21	Aug 06/21	Aug 13/21	Aug 20/21	WoW
Canada	3,644	3,435	3,282	3,744	3,480	3,611	3,476	3,228	3,371	3,057	3,555	498
Saudi Arabia	381	555	565	316	347	359	363	351	302	363	286	-77
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	764	878	747	408	648	797	621	634	601	629	595	-34
Colombia	143	340	139	154	140	144	144	141	293	143	370	227
Iraq	305	151	142	229	182	480	145	82	120	150	77	-73
Ecuador	96	29	260	0	95	171	168	46	150	197	261	64
Nigeria	169	183	33	142	187	195	55	212	150	214	95	-119
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	5,502	5,571	5,168	4,993	5,079	5,757	4,972	4,694	4,987	4,753	5,239	486
Others	1,244	1,372	1,238	882	1,142	1,340	1,535	1,738	1,409	1,597	918	-679
Total US	6,746	6,943	6,406	5,875	6,221	7,097	6,507	6,432	6,396	6,350	6,157	-193

Source: EIA, SAF

Oil – Mexico July production up 2.0% YoY, Aug fire causes est. loss of 0.421 mmb/d

On Thursday, Pemex reported July crude oil production of 1.701 mmb/d, an increase of +2.0% YoY and +0.18% MoM. However, August will be much lower given last Sunday, Pemex lost 421,000 barrels of daily output after a gas leak caused a fire at the platform off the coast of Campeche. Production from some of the 125 wells that were taken offline by the incident has restarted. Thirty-five wells are producing 71,000 barrels daily and the company plans to resume output of an additional 110,000 barrels per day in the next 36 hours. It also means that the new lower revised forecast (see below) for 2021 will be too high.

Pemex July production up 2.0% YoY; fire takes 125 wells offline

Figure 25: Pemex Mexico Oil Production

Oil Production (thousand b/d)	2015	2016	2017	2018	18/17	2019	19/18	2020	20/19	YTD 2020	2021	21/20
Jan	2,251	2,259	2,020	1,909	-5.5%	1,623	-15.0%	1,724	6.2%	1,724	1,651	-4.2%
Feb	2,332	2,214	2,016	1,876	-6.9%	1,701	-9.3%	1,729	1.6%	1,726	1,669	-3.5%
Mar	2,319	2,217	2,018	1,846	-8.5%	1,691	-8.4%	1,745	3.2%	1,714	1,697	-2.8%
Apr	2,201	2,177	2,012	1,868	-7.2%	1,675	-10.3%	1,703	1.7%	1,711	1,693	-0.6%
May	2,227	2,174	2,020	1,850	-8.4%	1,663	-10.1%	1,633	-1.8%	1,695	1,688	3.4%
June	2,247	2,178	2,008	1,828	-9.0%	1,671	-8.6%	1,605	-3.9%	1,680	1,698	5.8%
July	2,272	2,157	1,986	1,823	-8.2%	1,671	-8.3%	1,595	-4.5%	1,668	1,701	6.6%
Aug	2,255	2,144	1,930	1,798	-6.8%	1,683	-6.4%	1,632	-3.0%	1,663		
Sept	2,271	2,113	1,730	1,808	4.5%	1,705	-5.7%	1,643	-3.6%	1,667		
Oct	2,279	2,103	1,902	1,747	-8.1%	1,655	-5.3%	1,627	-1.7%	1,663		
Nov	2,277	2,072	1,867	1,697	-9.1%	1,696	-0.1%	1,633	-3.7%	1,660		
Dec	2,275	2,035	1,873	1,710	-8.7%	1,706	-0.2%	1,650	-3.3%	1,659		

Source: Pemex

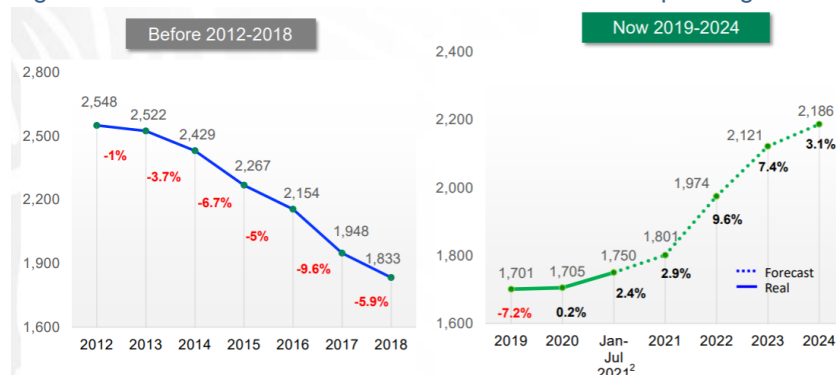
Recall, last week, Pemex finally lowered its high oil production forecasts

Last week's (Aug 22, 2021) Energy Tidbits highlighted Pemex posting a new investor presentation on Aug 19 [\[LINK\]](#). It didn't provide all forecast information (ie. no natural gas production forecast) but did provide a revised lower oil production forecast. We have been warning this was coming, the latest was in our August 1, 2021 Energy Tidbits when we wrote "Pemex 2021 oil production forecast of 1.944 mmb/d looks ridiculously high. Pemex posted a investor presentation [\[LINK\]](#) on June 23, which includes its unchanged 2021 forecast for "Total Crude Oil Production" to average 1.944 mmb/d in 2021. The fine print says it includes condensate, which typically runs

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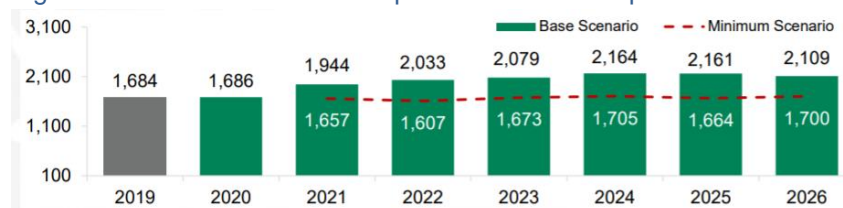
about <50,000 b/d. If we back out the condensate and use 1.90 mmb/d, it means crude oil production would have to average ~2.05 mmb/d for the last 7 months of 2021.” The new Aug 19 presentation lowers 2021 oil (including condensate & partners production) to 1.801 mmb/d for 2021 (was 1.944 mmb/d), and to 1.974 mmb/d for 2022 (was 2.033 mmb/d). Below are the Pemex oil production forecasts in the Aug 19 and June 23 slide decks.

Figure 26: Pemex Total Crude Oil Production Forecast per Aug 18 slide deck



Source: Pemex

Figure 27: Pemex total crude oil production forecast per June 23 slide deck



Source: Pemex June 23, 2021 investor presentation

Oil – Not clear how much of Pemex’s shut in 421,000 b/d is back on production

As of our 7am MT news cut off, it is unclear how much Pemex oil production is back on line and what is the timing for the full restoration of the 421,000 b/d shut in a week ago. It was a bad week for Pemex with a fire at their major offshore production hub, which led to seven deaths and six injured in the fire. It also led to the shut in of 421,000 b/d, or ~25% of its total oil production. On Wednesday, we tweeted [\[LINK\]](#) “#Pemex says restored 71,000 b/d so far, another 110,000 b/d in next 36 hrs, balance 240,000 b/d by Mon. Video incl good look at damage. Thx lkassai@bloomberg.net for translation. #OOTT”. Bloomberg reported on the Pemex CEO Octavio Romero Wednesday press conference in spanish, and wrote “Pemex has so far recovered 71,000 bpd of production and in the next few hours expects to add an additional 110,000 bpd. Romero said on Tuesday that Pemex expects to fully resume by Aug. 30 all oil production shut down by the fire.” We have not seen any formal updates since then and it not clear where Pemex is on the Romero timeline. However, the expectations are that Pemex is not close to delivering on the restoration of the full 421,000 b/d by tomorrow.

Pemex 410,000 b/d shut in status not clear

Oil – Mexico June oil exports +11.6% YoY to 1.173 mmb/d

Pemex also reported its July crude oil exports on Tuesday. Mexico oil exports in July were 1.173 mmb/d, which +11.6% YoY, and +6.1% from June of 1.106 mmb/d. July imports are

Pemex July oil exports up 11.6% YoY

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the highest since April 2020, however, as previously mentioned, a fire on the E-Ku-A2 platform saw 421,000 bpd taken offline. We expect August figures to be severely affected and no estimates have been given. Pemex has not updated their refinery input forecasts since Oct 5 which was for 2020 of 681,000 b/d and 2021 of 1.114 mmb/d and 2020 was well below forecast at 591,000 b/d. Refinery inputs for July were up +34.9% YoY and +4.9% MoM from June. Boosted refining capacity lies at the heart of AMLO's broader quest to revitalize the heavily indebted oil and gas company and the July data supports the initiatives. Below is our table of the Pemex oil export data.

Figure 28: Pemex Mexico Oil Export

Oil Exports (thousand b/d)	2015	2016	2017	2018	2019	19/18	2020	20/19	YTD 2020	2021	21/20
Jan	1,261	1,119	1,085	1,107	1,071	-3.3%	1,260	17.6%	1,260	979	-22.3%
Feb	1,305	1,241	1,217	1,451	1,475	1.7%	1,093	-25.9%	1,179	1,006	-8.0%
Mar	1,228	1,062	1,001	1,176	1,150	-2.2%	1,144	-0.5%	1,167	925	-19.1%
Apr	1,035	1,081	1,017	1,266	1,023	-19.2%	1,179	15.2%	1,180	923	-21.7%
May	1,114	1,204	958	1,222	1,205	-1.4%	1,062	-11.9%	1,156	1,031	-2.9%
June	1,047	1,098	1,157	1,110	995	-10.4%	1,114	12.0%	1,149	1,106	-0.7%
July	1,187	1,146	1,255	1,156	1,079	-6.7%	1,051	-2.6%	1,135	1,173	11.6%
Aug	1,261	1,261	1,114	1,181	1,082	-8.4%	1,190	10.0%	1,142		
Sept	1,169	1,425	1,159	1,206	995	-17.5%	1,023	2.8%	1,132		
Oct	1,280	1,312	1,342	1,027	963	-6.2%	908	-5.7%	1,110		
Nov	1,178	1,273	1,388	1,135	1,114	-1.9%	1,171	5.1%	1,115		
Dec	1,008	1,115	1,401	1,198	1,115	-6.9%	1,243	11.5%	1,126		

Source: Pemex

Oil – OPEC+ meeting is scheduled for Wed Sept 1

Up until a couple hours ago, we haven't see OPEC+ ministers talk about the Wed OPEC+ meeting. Below, we note the Kuwait oil minister comments this morning. Other than from him, it's been pretty quiet from the OPEC watchers this week even though the next scheduled OPEC and non-OPEC Ministerial Meeting is only 3 days away on Wed Sept 1. Last week, we saw more of the US analysts respond move to an expectation for OPEC+ to delay some of the planned production increases. This was in response to increasing Delta spreading and more restrictions and oil prices dropping. No one ever knows what the oil maestro, Saudi Energy Minister Abdulaziz, is thinking and he has always warned he likes to keep the market on its toes. However, we are in the camp that doesn't expect any change to the planned 400,000 b/d increase because Saudi Arabia has always said they don't respond to prices. And, on top of that, we think it will be premature to respond in the face of oil supply interruptions from Hurricane Ida and Pemex. But you never know with Abdulaziz.

**OPEC/non-OPEC
Sept 1 meeting**

Oil – Kuwait says OPEC+ should reconsider its 400,000 b/d increase

Earlier this morning, we tweeted [\[LINK\]](#) *"#OPEC+ "we must be careful and reconsider this increase. there may be a halt to the 400,000 (bpd) increase" says Kuwait oil minister. Early given #Pemex #HurricaneIda #Oil supply interruptions? OPEC+ meeting Wed. Wonder what Abdulaziz believes? #OOTT".* Reuters reported this morning with quotes from the Kuwait oil minister. Up until this report, we haven't seen OPEC+ ministers talk about the Wed OPEC+ meeting. But Kuwait oil minister seemed to put forward a fairly clear position that OPEC+ should delay their planned 400,000 b/d increase. And it is important to note that Reuters wrote this was his quote and not a reporting of his comments. Reuters wrote *"The markets are slowing. Since COVID-19 has begun its fourth wave in some areas, we must be careful and reconsider this increase. There may be a halt to the 400,000 (bpd) increase,"* Mohammad Abdulatif al-Fares told Reuters on the sidelines of a government-sponsored event in Kuwait City." Reuters also wrote that he noted there are differing views *"Asked about the U.S. call, Fares said OPEC+ members had different views on the matter. "There are meetings with OPEC countries, especially the Gulf Cooperation Council countries, and so far*

**Kuwait: OPEC
should reconsider
increase**

there are different views on how to handle this issue," Fares said." Our Supplemental Documents package includes the Reuters report.

Oil – Israel goal is to “permanently” keep Iran from being able to break out to nuclear

We recognize Biden said on Friday that the US will continue to try the diplomatic approach to Iran and said there will be other options if that doesn't work. We listened live to the first Biden/Bennett press conference, before the detailed meeting, and thought Israel PM Bennett's comments were a clear warning that Israel is a wildcard on what happens to Iran. We tweeted [\[LINK\]](#) *"Risk premium to #Oil? is #JCPOA enough to stop Israel independent action? #Bennett 'permanently keep Iran away from ever being able to break out to nuclear weapon' 'never outsource our security, its our responsibility to take care of our fate'. what will permanently involve? #OOTT".* It caught our attention that Bennett said their goal is to "permanently" keep Iran from being able to break out to nuclear weapon. And then his comment that it is their responsibility to take care of their fate. The question will be if a return to the JCPOA or other separate Iran deal will satisfy Israel? And is not, what will Israel do if it wants to "permanently" stop Iran from being able to break out to nuclear? Our Supplemental Documents package includes the SAF Group transcript of the Bennett comments.

**Israel PM
Bennett
comments**

Oil – Libya's Agoco group says no workers at oil fields & sites so shutting down

We have been highlighting the currently scheduled Dec 24 Libya election. We probably shouldn't be surprised to see more internal issues pop up in the run up to the election. One that is rearing its head again is Arabian Gulf Oil Company's fight to get Libya budget allocations to carry out operations and its programs. This became a big issue in April (see our April 25, 2021 Energy Tidbits) and raised its head again on Friday. Agoco's Friday Facebook posting [\[LINK\]](#) that laid out a pretty clear Agoco position, writing *"the company has become completely unable to continue its activity and carry out its work without allocating the necessary funds for this, and that the company was conducting its business without referring the budgets for the years 2020 and 2021 to it or monetizing the funds required to carry out the work despite continuous promises to provide budgets And money, which led to the accumulation of debts and obligations, its inability to provide the necessary spare parts, equipment, operating and production requirements, and its inability to continue the technical or service contractual obligations associated with the presence of workers in the company's fields and sites. Therefore, the company will not be able to continue to operate without the availability of budgets and funds to run its business, and it will be forced to suspend all activities and works unless it is provided with the funds necessary to operate production."* When we read the Agoco Facebook post, we tweeted [\[LINK\]](#) *"No oilfield/plant workers = shut in production. Libya oil shut in will happen soon if no pay/budget deal. Agoco Facebook posting says don't have money to continue to have 'presence of workers in the company's fields and sites'".* Platts wrote [\[LINK\]](#) Agoco operates eight oil fields with total capacity of ~280,000 b/d. These feed into key Libyan crude grade Sarir/Mesla (37.8 API, 0.26% H2S), which is exported from the 250,000 b/d Marsa el-Hariga terminal. As of our 7am MT news cut off, we haven't seen any official Libya NOC comment on production but, if Agoco doesn't have any oil field or plant or pipeline workers working then they will have to shut down production due to safety reasons. Our Supplemental Documents package includes the Agoco Facebook posting.

**Risk to Libya oil
production**

Oil – India oil imports down MoM to 3.55 mmb/d in July

Last Thursday, India's Petroleum Planning and Analysis Cell released crude oil import data for July [\[LINK\]](#). Total crude oil imports increased 21.9% YoY in July to 3.55 mmb/d and decreased from 3.88 mmb/d June, as refiners shut units for maintenance and cut crude imports anticipating lower fuel demand during the monsoon season. Crude imports for the

**India oil imports
down in July**

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2020-2021 financial year were down 12.7% YoY. Petroleum products demand for July was +7.7% YoY to 3.97 mmb/d and was relatively unchanged MoM from 3.98 mmb/d in June. Refinery throughput in July was +9.5% YoY to 4.58 mmb/d and a slight increase from 4.50 mmb/d in June.

Oil – Crude inventories in ARA hub fall to 17-mth low

We continue to see data indicators that global oil inventories built up in the early day of Covid shutting down the world are being worked down. Last week's (Aug 22, 2019) Energy Tidbits highlighted that Saldanha Bay (South Africa) storage levels are now sub-pre-pandemic levels. On Wednesday, Bloomberg reported crude storage in the Amsterdam-Rotterdam-Antwerp (ARA) oil trading hub have fallen to the lowest levels since March 2020. For the current time of year, stockpiles are at the lowest seen since 2014. Stocks fell by 5.1 mmb, driven entirely by a drop in Rotterdam storage. Below is a chart tracking crude total tank stocks in the ARA since 2016. Our Supplemental Documents Package includes the Bloomberg report.

ARA storage levels below pre-pandemic

Figure 29: ARA storage since 2016



Source: Bloomberg

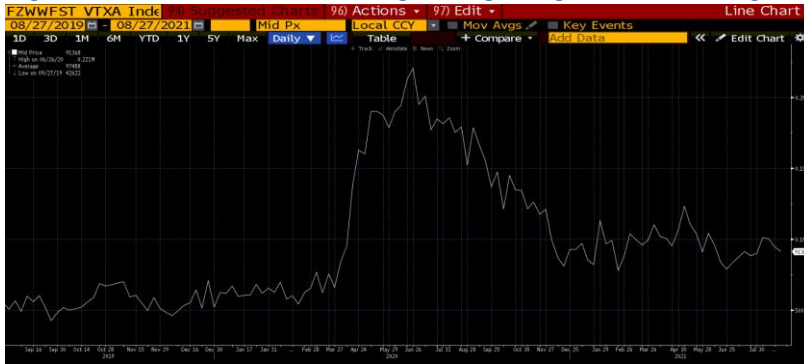
Oil – Vortexa floating storage est at 91.37 at Aug 27, +12.57 mmb since June 25

On Saturday, Bloomberg posted the Vortexa crude oil in floating storage as of Aug 27. Bloomberg writes it weekly Vortexa floating oil storage story on Mondays. Vortexa estimated crude oil in floating storage as of Aug 27 is 91.37 mmb, which is down from 94.30 mmb as of Aug 20. There was a downward revision to Aug 20, it was revised down to 94.30 mmb but was originally reported at 95.11 mmb. And there was a big upward revision to Aug 13, now being estimated at 100.36 mmb but was estimated last week at 96.80 mmb. Aug 27 of 91.37 mmb is up 12.57 mmb from the recent trough of 78.80 mmb as of June 25. Note June 25 was revised higher this week, last week it was estimated at 74.78 mmb. Aug 27 of 91.37 mmb means floating storage is down 59% (down 129.26 mmb) from the June 26, 2020 peak of 220.63 mmb. There was an immaterial revision to June 26, 2020 as last week it was estimated at 220.38 mmb. Aug 27 at 91.37 mmb is still +67% vs pre covid of 54.68 mmb at Aug 26, 2019.

Vortexa floating storage

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Figure 30: Vortexa Global Floating Storage Aug 27, 2019 to Aug 27, 2021



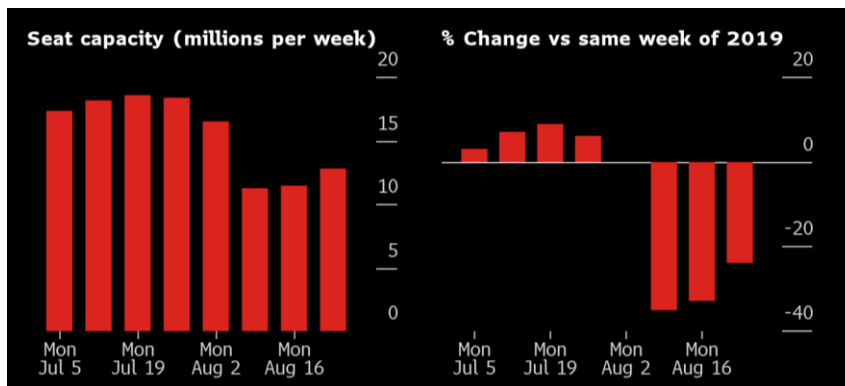
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, Delta variant continues to cloud demand recovery

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Their update provides insight into oil demand recovery and highlights two sides of the overall coin: jet fuel demand and gasoline demand. As previously mentioned, air travel's recovery had been dragged down by a recent plunge in Chinese airline activity due to Delta-variant concerns, however it is beginning to recovery from its early August drop and is now down -24% vs 2019. Analysts' outlooks differ when trying to forecast Delta's impact on overall demand. Analysts at Australia & New Zealand Banking Group have cut their Q3 demand forecast for Asia (excluding China) by 300,000 b/d, while Goldman Sachs has a much more optimistic outlook for demand. GS says oil prices are "oversold" and sees the Delta variant as little more than a "transient event to oil demand", while the supply deficit is far more persistent. Mexico is currently the only airline market which has similar seat capacity to 2019, at -3.3% vs 2019. The US is still not fully recovered, with seat capacity currently at -12%. Overall, the number of global flights is currently down -29%, and world seat capacity is down -34% since 2019. As we continue to highlight, road travel and broader measures of oil demand are much more bullish. For the week ended Aug 13, total products supplied in the US were +2.2% vs 2019. Another positive indicator is congestion in Beijing is starting to return after the spread of Delta has been contained. Below is a chart showing China's initial air travel recovery from its early Aug plunge. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Bloomberg's Oil Demand Monitor

Figure 31: China air travel recovery



Source: Bloomberg, OAG

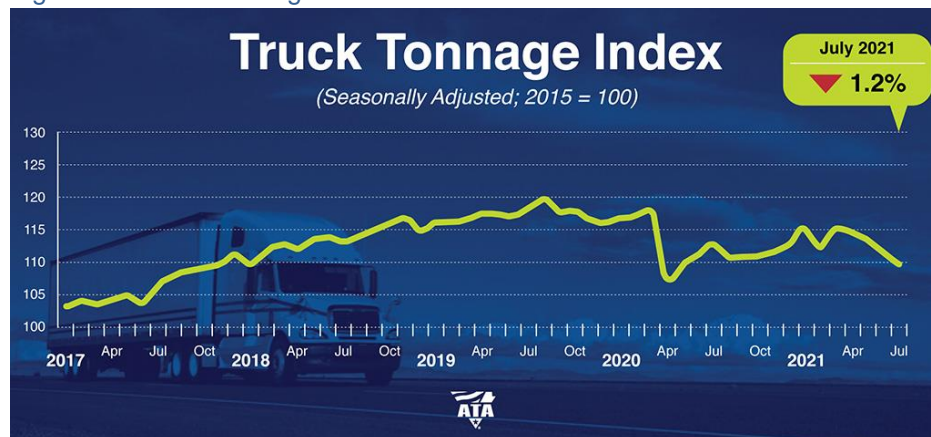
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Oil – July truck tonnage -1.2% MoM, down 2.9% YoY, labor remains a big factor

It looks like the US supply chain, especially labor shortages, is having an increasing impact on commerce. Our Energy Tidbits have noted on multiple times the tank truck driver shortage has impacted gasoline supplies in some areas to gas stations. This driver shortage is part of an overall truck/transport driver shortage impacting the supply chain in all sectors. In fact, a US Department of Commerce advisory group is urging federal officials to address the nationwide shortage currently being experienced, which the panel says has “*likely reached an all-time high*” and according to ATA Chief Economist Bob Costello, is a serious threat to economic recovery [\[LINK\]](#). It’s therefore no surprise that this is translating to the monthly trucking data from the American Trucking Association. The July index declined further and also flipped to a YoY decrease, and no surprise, the supply side was cited as the big issue for trucking (namely finding qualified drivers) which other industries are also experiencing. This serves as a reminder that costs are increasing and as such supply chain times are getting worse. Labor costs have to go up in all sectors, including oil and gas. We know that everyone is calling these transitory, but labor has increasingly moved to a higher base pay in addition to temporary bonuses/incentives. On Tuesday, the American Trucking Association released its monthly Truck Tonnage Index which decreased -1.2% MoM in July after a -1.5% MoM decrease in June [\[LINK\]](#). The July reading is -2.9% YoY vs June of +0.5% YoY. The ATA wrote “*Softness in tonnage over the last few months is due more to supply constraints, rather than a big drop in freight volumes. Not only are there broader supply chain issues, like semiconductors, holding tonnage back, but there are also industry-specific difficulties, including the driver shortage and lack of equipment. In addition to these supply issues, retail sales and housing starts, both large drivers of truck freight, retreated in July, although both rose on a year-over-year basis.*” Our Supplemental Documents Package includes the ATA release.

Truck tonnage index -2.9% in July

Figure 32: Truck Tonnage Index



Source: American Trucking Association

Oil & Natural Gas – Good ESG metrics comps for US oil and gas producers

Thanks to RBC’s Nick Sellmer and RBC oil analyst Scott Hanold for Scott’s “*US E&P Comps: Environmental Policy in Focus*”. These comps caught our eye for their two pages “*Environmental Standards*” and “*Social & Governance Standards/Heat Map*” that are comps shows how each producer fares on series of key metrics. These are good for producers to use a guide for how they will be marked by investors. During my time in the sell side, I used to tell producers to minimize the reasons for an investor to screen you out as the objective is to get the maximum number of investors who will at least consider the stock. And these are

RBC’s ESG metrics for producers

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good for investors who are using ESG scoring to look for reasons to not invest in an oil and gas stock. However, RBC analyst Scott Hanold reminded me of the reality check here - investors use ESG as a reason to not own stocks when the group is not working and ignores/talks around ESG risks when the sector performs. And that he's not sure investors are truly using scorecards right now but could at some point. He is right on, oil and gas stocks have been big winners in 2021 but as more capital allocators lower allocations to oil and gas, his ESG metrics will be used in a screen out. Our Supplemental Documents package includes the two key comp pages.

Oil & Natural Gas – Texas oil and gas producer jobs down 1,200 YoY

We couldn't help think that shale/tight producers are planning to keep operating under a capital constrained/restrained basis for the next year or so after seeing the Monday report by the Texas Independent Producers and Royalty Association (TIPRO) on Texas upstream employment in July [\[LINK\]](#). No surprise, jobs continue to increase in the face of higher oil and gas prices. But we have to wonder if we are seeing the best indicator that the US shale/tight oil and gas producers don't expect to change much from the disciplined forced approach to capex. TIPRO reports that net Texas upstream jobs were +15,800 jobs YoY in July, which make sense given July 2020 was probably close to the bottom in sentiment in the oil and gas industry. In fact, on Aug 6, 2020, TIPRO had reported that the Texas oil and gas industry had lost nearly 40,000 jobs in H1/20 vs H1/19. The June 2020 numbers were likely right near the bottom. So TIPRO reporting +15,800 jobs YoY makes sense. The surprising data is that, compared to the lows of July 2020, TIPRO reports jobs were +17,000 in the services sector bit that was offset by -1,200 in the oil and natural gas extraction group ie. producers. On the surface, how can it make sense for producer jobs to be -1,200 YoY vs July 2020 in the face much stronger oil and gas prices. We think the only explanation is that producers learned they could do more with much less in the brutal 2020, but to be down vs July 2020, we have to believe its an indicator that shale/tight producers will continue to operate under a capital constrained/restrained basis even in the face of high oil and gas prices. Our Supplemental Documents package includes TIPRO's comment on both July and June data.

Texas upstream jobs +15,800 in July

Oil & Natural Gas – Number of BC wildfires down by 19% since Aug 18

Looks like BC is finally getting some decent weather helping them reduce the number of wildfires and out of control wildfires. Our Thursday tweet [\[LINK\]](#) reported on the BC wildfire status as of Aug 18, 7pm PT and there were 291 wildfires. The latest update was the Aug 28 update, which includes data as of Aug 27, 7pm PT, when BC reported they were down to 236 wildfires.

BC wildfires update

Figure 33: BC Wildfires Status

Aug 27, 7pm PT	Aug 20, 7pm PT	Aug 13, 7pm PT
Fires: <ul style="list-style-type: none"> Wildfires burning in B.C.: 236 Since April 1, 2021: <ul style="list-style-type: none"> 1,554 wildfires 864,574 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 26 Coastal: 20 Kamloops: 77 Northwest: 5 Prince George: 52 Southeast: 56 	Fires: <ul style="list-style-type: none"> Wildfires currently burning in B.C.: 250 Since April 1, 2021: <ul style="list-style-type: none"> 1,533 wildfires 859,196 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 28 Coastal: 18 Kamloops: 81 Northwest: 5 Prince George: 53 Southeast: 65 	Fires: <ul style="list-style-type: none"> Wildfires currently burning in B.C.: 273 Since April 1, 2021: <ul style="list-style-type: none"> 1,499 wildfires 670,923 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 35 Coastal: 21 Kamloops: 85 Northwest: 5 Prince George: 65 Southeast: 56

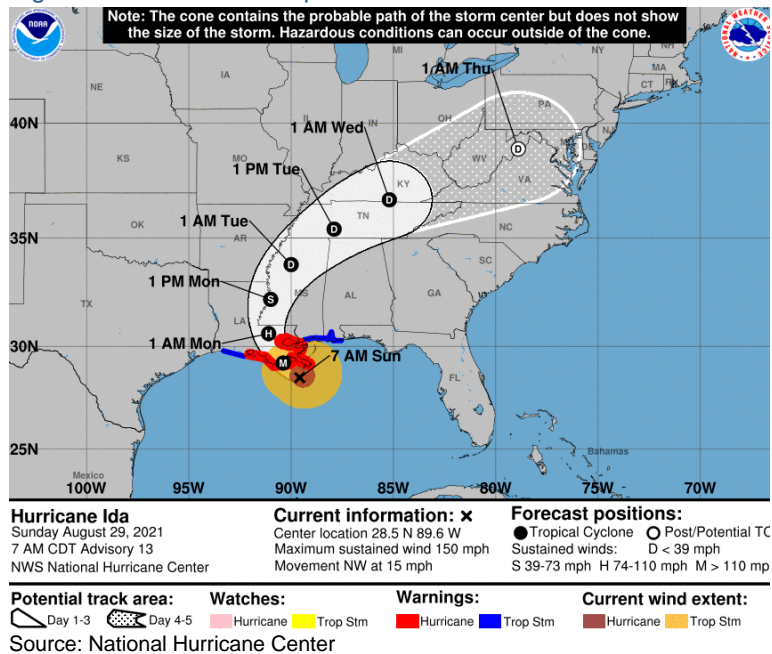
Source: BC Government News

Oil & Natural Gas – Hurricane Ida shuts in 1.65 mmb/d of oil enroute to New Orleans

As of our 7am MT news cut off, Hurricane Ida is a few hours away from making landfall right at New Orleans. The National Hurricane Center's current forecast was as of 6am MT and is that Ida's strength increased overnight and is now up to a Category 4 at 150 mph. It is also still moving at a fast pace of 15 mph (was 16 mph yesterday), which should help reduce the amount of rainfall. However, the fast movement is typically a negative as it leads to greater storm surge. One other big overlooked item is that hurricanes normally cause big power outages and, without power, oil and gas operations come to a standstill. Reminder Hurricane Katrina brought huge power outages. As of our news cut off, there aren't any significant power outages in Louisiana. A good interactive link to see power outages anywhere in the US is <https://poweroutage.us/>. The path is still right at New Orleans and the major US refinery row. The winds are extremely strong and don't forget more damage tends to come from flooding and storm surge. Note we do not have any reports yet if any damage to the offshore oil and gas platforms. Ida has just moved thru the heart of offshore oil and gas production in the Gulf of Mexico. These platforms normally can withstand hurricane strength winds, but we will still need to wait to see if any damage especially given the magnitude of the shut in. The latest Bureau of Safety and Environmental Enforcement shut in oil and gas production data is as of 2pm ET yesterday [\[LINK\]](#). the BSEE shut in estimates are 1.653 mmb/d oil (90.84% of GoM) and 1.89 bcf/d natural gas (84.87% of GoM). Also BSEE said 279 platforms evacuated (49.82% of GoM) and 11 rigs evacuated (100% of GoM). Below is NHC current Ida path and the EIA's interactive mapping of oil infrastructure in the path.

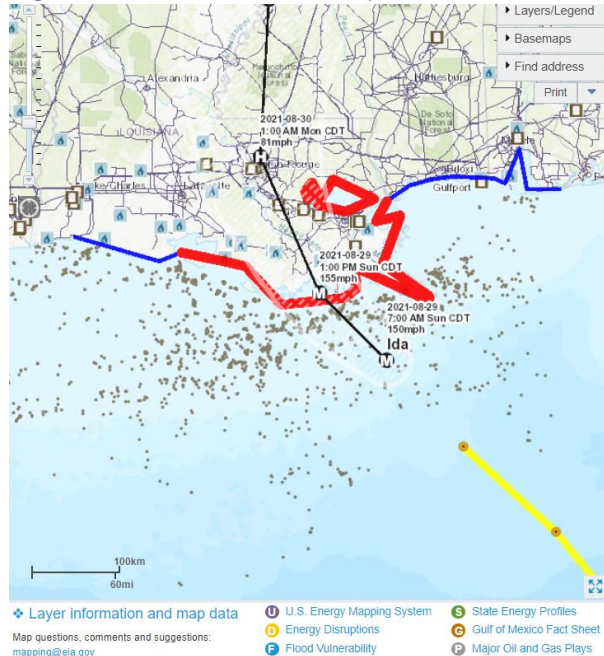
Ida making landfall in a few hours

Figure 34: Hurricane Ida path



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Figure 35: Oil infrastructure in path of Hurricane Ida

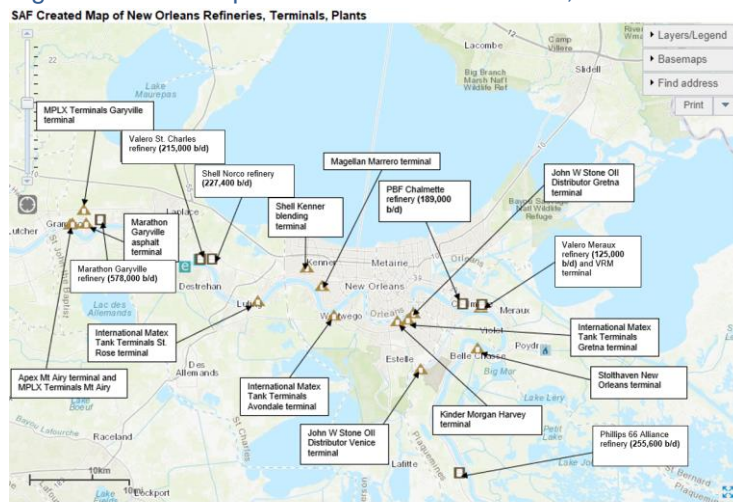


Oil & Natural Gas – Detailed SAF Group New Orleans oil and gas infrastructure map

My focus for SAF Group is research/market driven to provide support for my partners on the investment front. Because we are involved in shipping and other physical crude oil and products transactions, we have internal detailed maps for oil and gas infrastructure in major Gulf Coast areas such as New Orleans. Below is our New Orleans map that started with EIA data and added other company report data to include more terminal data. Note the map was updated as of Oct 31, 2020.

SAF New Orleans detailed oil infra map

Figure 36: SAF Map of New Orleans Refineries, Terminals and Plants



Source: SAF Group <https://safgroup.ca/news-insights/>

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Oil & Natural Gas – Saffir-Simpson for hurricane strength ranking

As of our 7am MT news cut off, the National Hurricane Center's latest has Hurricane Ida as a category 4 strength hurricane at 150 mph. The scale for rating a hurricane strength is the Saffir Simpson scale. Category 4 is 130 to 156 mph wind speeds. That is a scary hurricane and none of us can imagine the strength of the winds. Below is the National Hurricane Center's description of the Saffir Simpson scale [\[LINK\]](#).

Hurricane strength ratings

Figure 37: Saffir-Simpson hurricane strength ranking

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

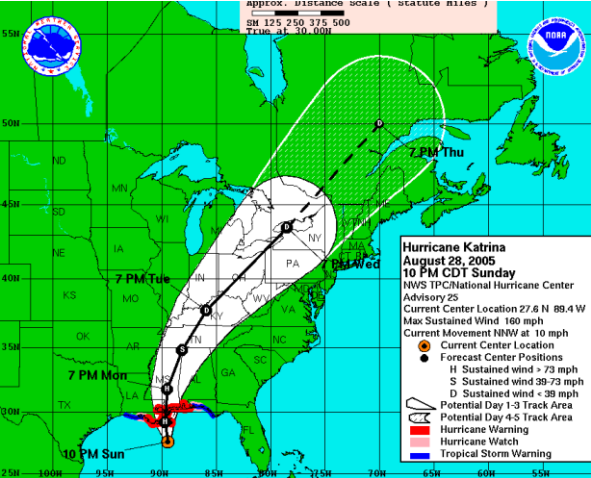
Source: NOAA

Oil & Natural Gas – And it's the 16th anniversary of Hurricane Katrina

As of our 7am MT news cut off, Hurricane Ida is about to make landfall right at New Orleans at a strength much greater than Hurricane Katrina. We are hoping that people are safe and the damage isn't great. And we are hoping this is nothing like a Hurricane Katrina that hit on a very similar path 16 years ago on the same day, Aug 29, 2005. Katrina made its second landfall right at New Orleans at as Cat 3 at 125 mph. It was the costliest hurricane to ever hit the US and one of the 5 deadliest. There were over 2.7 mm that lost power. Below is the National Hurricane Center forecast the day before Katrina hit.

Katrina was 16 years ago today

Figure 38: Hurricane Katrina Aug 28, 2005



Source: National Hurricane Center

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Energy Transition – Bloomberg reminds scary low electricity reserve in Germany

We continue to be shocked that G7 governments are prepared to have extremely low electricity margins in the 2020s. They are setting up for very high electricity costs and increasing risks of shortages. Later in the memo, we note Japan, well Germany looks to be the same. We just don't get it or maybe citizens don't understand the power shortages ahead. And sooner or later, G7 governments will have to deal with the reality that the Energy Transition is Not Ready for Prime Time. Germans better hope Merkel can push Nord Stream 2 across the goal line other wise electricity will tough in the 2020s. Last Sunday, Bloomberg reported "Germany Flirts With Power Crunch in Nuclear and Coal Exit". We didn't see it before going to press on last week's Energy Tidbits so later on Sunday we tweeted [\[LINK\]](#) "1/2. Must read @BloombergNEF By 2023, the margin of supply over peak demand is expected to plunge to 3%, or two gigawatts, from 26% before the pandemic. 3% reserve is scary low for #Electricity reliability. DE will need #NatGas from #NordStream2. Great report @vanessadezem" and [\[LINK\]](#) "2/2. Only 3% #Electricity reserve at peak demand with >40% of electricity supplied by intermittent #Solar #Wind. Hlgh electricity prices & interruption risk are inevitable by DE replacing 24/7 #Coal #Nuclear baseload with intermittent solar & wind. #NatGas will be needed." The Bloomberg forecast includes what we see is a scary sentence on Germany's electricity margin. These are ridiculously low reserves. And basically says Germany will have to force down power usage at many times of the year and that electricity prices will be high. Bloomberg wrote "But the crunch could come much earlier. By 2023, the margin of supply over peak demand is expected to plunge to 3%, or two gigawatts, from 26% before the pandemic, according to BNEF". Our Supplemental Documents package includes the Bloomberg report.

**Low electricity
reserve forecast
for Germany**

Low Germany reserve margin and intermittent wind/solar is >40% of supply

Our tweet reminded of the other scary reality of Germany electricity supply – Germany has been replacing 24/7 baseload coal and nuclear power with intermittent wind and solar power. So it will have an extremely low (almost zero) electricity margin a peak times wit >40% of its electricity coming from intermittent wind and solar. How can that make a low electricity reserve even scarier? Below are the BP data and its shows how the decline in nuclear and coal electricity supply in Germany in the last 10 years has been replaced by wind and solar. This is why Germans better hope Merkel can push Nord Stream 2 over the goal line.

Figure 39: Germany Electricity Generation by Fuel 2010 thru 2020

Electricity Generation*													Growth rate per annum		Share
Terawatt-hours	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2020	2009-19	2020
Germany	633.1	613.1	630.1	638.7	627.8	647.6	649.7	652.9	642.9	609.4	571.9	-6.4%	0.2%	2.1%	
Electricity generation from coal*													Growth rate per annum		Share
Terawatt-hours	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2020	2009-19	2020
Germany	262.9	262.5	277.1	288.2	274.4	272.2	261.7	241.9	228.2	171.4	134.8	-21.6%	-3.8%	1.4%	
Nuclear: Generation*													Growth rate per annum		Share
Terawatt-hours	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2020	2009-19	2020
Germany	140.6	108.0	99.5	97.3	97.1	91.8	84.6	76.3	76.0	75.1	64.4	-14.5%	-5.7%	2.4%	
Renewables: Generation- Solar*													Growth rate per annum		Share
Terawatt-hours	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2020	2009-19	2020
Germany	11.7	19.6	26.4	31.0	36.1	38.7	38.1	39.4	45.8	46.4	50.6	8.8%	21.6%	5.9%	
Renewables: Generation- Wind*													Growth rate per annum		Share
Terawatt-hours	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2020	2009-19	2020
Germany	38.5	49.9	51.7	52.7	58.5	80.6	79.9	105.7	110.0	125.9	131.0	3.7%	12.5%	8.2%	
Electricity generation from gas*													Growth rate per annum		Share
Terawatt-hours	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2020	2009-19	2020
Germany	89.3	86.1	76.4	67.5	61.1	61.5	80.6	86.0	81.6	90.0	91.9	1.8%	1.1%	1.5%	

Source: BP

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Follows Siemens warning “the energy transformation will cost a lot of money”

We recognize that Germany media don't seem to get the same play as English media in the UK or US, but last week's (Aug 22, 2021) Energy Tidbits highlighted some very blunt talk on the Energy Transition from Siemens CEO Christian Bruch. Last week, we wrote *“The Energy Transition is Not Ready for Prime Time is what we call the theme we expect to emerge in 2021 and 2022 as the pro Net Zero countries push to commit to Net Zero and we see an increasing number of watchers point out that the reality isn't there to meet these aspirations. It all fits our big picture thesis that the Energy Transition is happening, but it will take longer, cost more and be a bumpy road. Last Sunday, there was a blunt reminder of this from Siemens CEO Christian Bruch in the Frankfurter Allgemeine Zeitung report “Will green electricity get even more expensive, Mr. Bruch?”* [\[LINK\]](#). Bruch's comments were the most direct reality check comments we have seen from a CEO. We wish others were as direct ie. Chevron CEO Wirth. He made a number of blunt comments and we tweeted [\[LINK\]](#) on one these comments “I find the narrative that sustainability shouldn't cost anything is extremely difficult. The energy transformation will cost a lot of money”, need #NatGas & many other #EnergyTransition reality checks from @Siemens_Energy CEO Bruch. Great interview @MeckGeorg @MarcusTheurer.” There are many other energy transition reality check comments. Another example is “What are renewables worth to us? Just setting goals will not be enough. To believe that we can quickly expand renewable energies and that electricity is becoming cheaper and cheaper, that doesn't go together. The energy transition will cost money.” He also warns that natural gas is needed in Germany for more than a transition fuel. Bruch says “The demand for electricity in Germany will grow considerably, by 30, 40 or even 100 percent, as some say. The federal government recently increased its demand forecast, but I also think the new forecast is too low. If we are really serious about the change in mobility, industry and heating, then we will need a lot more electricity. Renewable energies form the backbone. But we will also need gas-fired power plants as a bridging technology for a transition phase. Not only for weather conditions with little wind and sun, but because otherwise we simply cannot meet the demand. The only alternative to this is to continue operating coal-fired power plants. And that is clearly worse. If you replace an old coal-fired power plant with a new gas-fired power plant, you reduce CO2 emissions by around two thirds. In Germany, with the phase out of nuclear and coal, almost 40 percent of electricity generation capacity will be lost. We need a replacement quickly for this.” There are many other energy transition reality check comments in the interview. Our Supplemental Documents package includes the Zeitung interview.”

Energy Transition – Japan already warning of more severe energy shortfalls in 2022

As noted above, we don't think citizens realize what will happen to their electricity supply in the 2020s under the Energy Transition. No one will doubt the commitments of the pro Energy Transition governments. We find it interesting to see that they are seeming to know what the consequences will be on their citizens. In Japan's case, they are already warning there will be more severe power shortfalls. This isn't a forecast that the governments can ignore as not being an official government view. Rather this is an official government forecast from METI, Japan's Ministry of Economy, Trade and Industry. On Thursday, Bloomberg's Stephen Stapczynski tweeted [\[LINK\]](#) “Japan may encounter more severe power shortfalls in the fiscal year ending March 2023 than before as power companies plan to shut thermal plants, according to METI. ~12GW of thermal power capacity will be suspended or scrapped by FY2024”. Japan's METI is already warning on more power shortfalls. Its why we tweeted [\[LINK\]](#) ““Not Ready for Prime Time” is how to describe #G7 push to accelerate

Japan warning of power shortfalls

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#EnergyTransition. Its happening but will take longer, cost more & as Japan is warning, be a bumpy road. METI already warning more severe power shortfalls ahead. Thx @SSStapczynski #NatGas #LNG will be needed.” Then the question becomes will this cause them to re-evaluate their recent new aggressive energy transition targets to 2030? Have power shortages regularly and it has to have an impact. But that is to be expected. Its why we continue to highlight the Energy Transition is Not Ready for Prime Time. Below is the METI table [\[LINK\]](#) in Stapczynski’s tweet.

Figure 40: METI Supply and Demand Outlook for 2022 (H1 Demand)

2022年度の需給見通し（H1需要）

- 2022年度について、毎年春秋の需給検証で用いる10年に1度の猛暑・厳寒を想定したH1需要ベースで供給予備率をみると、①7月は東京、中部、関西など7エリアで最低限必要な3%ギリギリ（※）、②1～3月は東京エリアで▲2%～1%となっている。
- これらの数字には、先般行った休廃止可能性調査の結果は反映されておらず、その結果を反映すると、複数エリアで供給予備率が2～3%程度減少する見通し。

※安定供給に最低限必要な水準は3%。9月の東京・中部エリアについても、現時点では3%を満たしていないため、今後、補修調整等の追加的対策が必要。

厳気象H1需要

	7月	8月	9月	12月	1月	2月	3月
北海道	12.9%	18.9%	23.8%	14.1%	9.0%	11.4%	16.2%
東北	8.4%	5.0%	7.8%	13.2%	9.0%	11.4%	16.2%
東京	3.0%	5.0%	2.4%	9.5%	2.1%	2.4%	0.8%
中部	3.0%	5.0%	2.4%	9.5%	6.6%	3.2%	9.1%
北陸	3.0%	5.0%	7.9%	9.5%	6.6%	5.4%	14.1%
関西	3.0%	5.0%	7.9%	9.5%	6.6%	5.4%	14.1%
中国	3.0%	5.0%	7.9%	9.5%	6.6%	5.4%	14.1%
四国	3.0%	5.0%	7.9%	9.5%	6.6%	5.4%	14.1%
九州	3.0%	5.0%	19.7%	9.5%	6.6%	5.4%	14.1%
沖縄	28.8%	29.2%	34.3%	30.7%	31.3%	51.2%	63.1%

（出典）広域機関調べ

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Source: Bloomberg, METI

Energy Transition – Dow CEO says electricity will much more expensive

We continue to believe one of the Energy Transition themes in 2021 and 2022 will be the increasing number warning that the Energy Transition is Not Ready for Prime Time. Our view has been unchanged – the Energy Transition is going to happen, but it will take longer, be a bumpy road and cost more than expected. And our concern is that the warnings over the past few months are coming too late to change the momentum for G7 leaders to move aggressively at COP-26 Glasgow to move faster and commit to Net Zero. We haven’t gone back on Dow CEO’s comments in 2020 to see if he warned on electricity costs under the energy transition, but the WSJ wrote “Dow supported the Biden administration’s decision to rejoin the Paris climate agreement and has set a net-zero target for its carbon emissions by 2050.” We have noted other CEOs (some very high profile like BlackRock’s Larry Fink) who were very supportive for governments to move aggressively on climate change and have recently come out with warnings that the world isn’t ready to meet those aspirations. We didn’t get it when the CEOs were happy to jump on the energy transition bandwagon without warning of the implications. Unfortunately, its too late to stop the COP-26 train. Now it seems like they just want to be able to say they warned on electricity costs. On Friday, WSJ reported “Dow CEO Warns of Price Tag on Clean-Energy Plans” [\[LINK\]](#) and “Dow Inc. Chief Executive Jim Fitterling wants to know how Congress plans to pay for a proposed move to zero-carbon emission electricity that he says could dramatically increase energy costs, especially if it restricts natural-gas use.” “It’s not incrementally more expensive than what we do today, it’s much more expensive than what we do today, and the challenge...is the government has to figure out how to pay for it,” Mr. Fitterling said. “What we have to do is create a clear rationale for this move to zero carbon, and start to get some economics behind it.” Our Supplemental Documents package includes the WSJ report.

Dow CEO on
energy transition

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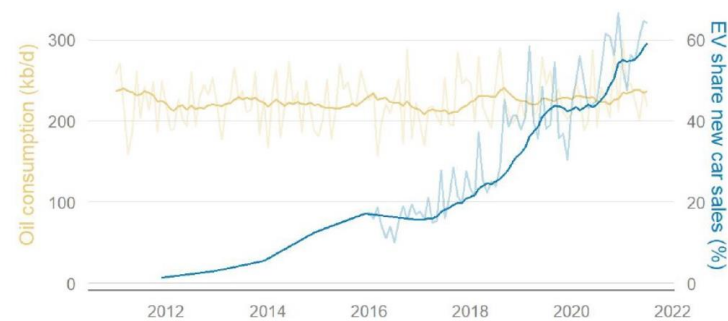
Energy Transition – Norway's EV sales up to 64% but oil consumption is unchanged

One of the big advantages of Twitter is that we get to see more US sellside research. A good example was yesterday, when Reuters London @ronbousso1 tweeted [LINK](#) the below Morgan Stanley chart and wrote “Interesting note from Morgan Stanley looking at why in Norway, where electric vehicles made 64% of new car sales, #oil consumption hasn't declined: - Cars are only 20-25% of oil demand - Fleet turnover is slow - Diesel truck/van sales have grown”. One mitigating factor is that Norway, being an oil exporting country, has historically had more oil linked industries ie. refineries, petrochemicals. Regardless, the concept is valid that passenger car EVs are a significant but only a small portion of most countries oil consumption. Its why we retweeted [LINK](#) “Thx @ronbousso1 for highlighting #EVs are growing but #Oil consumption is much more than passenger vehicles use of #Gasoline. Here is the @bp_plc historical split of oil consumption by end product for EU in total. #OOTT”. Below is the Morgan Stanley graph and the BP historical data of EU oil consumption by use.

Norway EV sales vs oil consumption

Figure 41: Norway EV Sales and Oil Consumption
Electric Vehicles and Oil Consumption

In Norway



Source: Morgan Stanley

Figure 42: EU Consumption by Product Group

Thousand barrels daily of which: European Union	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	2009-19	Share 2020	Share 2010
Light distillates	2718	2534	2412	2354	2314	2249	2266	2298	2304	2274	2119	-6.8%	-1.9%	21.7%	22.7%
of which: gasoline	1673	1602	1516	1470	1466	1441	1449	1463	1543	1573	1377	-12.5%	-1.2%	14.1%	13.9%
of which: naphtha	1045	931	896	884	848	808	817	835	762	700	742	5.9%	-3.3%	7.6%	8.0%
Middle distillates	5912	5783	5598	5627	5537	5770	5871	6029	6049	6113	5137	-16.0%	0.5%	52.6%	49.3%
of which: diesel/gasoil	5087	4947	4782	4810	4713	4913	4973	5068	5036	5077	4673	-7.9%	0.1%	47.8%	42.4%
of which: jet/kerosene	825	836	817	817	824	858	898	961	1012	1036	463	-55.3%	2.4%	4.7%	6.9%
Fuel oil	1148	1106	1003	885	820	784	822	825	852	824	568	-31.0%	-3.9%	5.8%	9.6%
Others	2220	2209	2140	2088	2076	2108	2132	2166	2143	2087	1950	-6.5%	-0.8%	20.0%	18.5%
of which: ethane and LPG	667	662	677	786	796	781	798	822	838	799	720	-9.9%	1.9%	7.4%	5.6%
Total European Union *	11998	11632	11154	10954	10748	10911	11090	11318	11348	11298	9774	-13.5%	-0.7%	100.0%	100.0%

Source: BP

Energy Transition – Expect Maersk's new carbon neutral tankers to run on bunker fuel

On Tuesday, Maersk made a major announcement “A.P. Moller - Maersk accelerates fleet decarbonisation with 8 large ocean-going vessels to operate on carbon neutral methanol” [LINK](#). The announcement received major Net Zero kudos as, in Q1/2024, they plan to introduce “the first in a groundbreaking series of 8 large ocean-going container vessels capable of being operated on carbon neutral methanol. The vessels will be built by Hyundai Heavy Industries (HHI) and have a nominal capacity of approx. 16,000 containers (Twenty Foot Equivalent - TEU). The agreement with HHI includes an option for 4 additional vessels in 2025. The series will replace older vessels, generating annual CO2 emissions savings of

Maersk's new carbon neutral tankers

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around 1 million tonnes. As an industry first, the vessels will offer Maersk customers truly carbon neutral transportation at scale on the high seas.” No question these new vessels have the potential to be significant to the reducing emissions. However, we were surprised that it seemed like the caveats to the Maersk announcement were either overlooked or just didn’t want to be heard by the Net Zero side. Its why we tweeted [\[LINK\]](#) “#Maersk orders 8 container vessels “capable” of operating on #Carboneutral #methanol. however vessels have “dual fuel engine setup” so can run on conventional low sulphur fuel oil as sourcing enough “proper carbon neutral methanol” from day 1 will be “challenging” #OOTT”. Maersk gave some very clear caveats to the use of the carbon neutral methanol vessels. The same press release said “the vessels come with a dual fuel engine setup. Additional capital expenditure (CAPEX) for the dual fuel capability, which enables operation on methanol as well as conventional low Sulphur fuel, will be in the range of 10-15% of the total price” And “Maersk will operate the vessels on carbon neutral e-methanol or sustainable bio-methanol as soon as possible. Sourcing an adequate amount of carbon neutral methanol from day one in service will be challenging, as it requires a significant production ramp up of proper carbon neutral methanol production, for which Maersk continues to engage in partnerships and collaborations with relevant players.” This sounds like Maersk will be operating the new vessels using conventional low sulphur fuel for some period. Our Supplemental Documents package includes the Maersk announcement.

Energy Transition – Big demand for Ford’s electric F-150 Lightning

No one should be surprised to see the huge interest in the Ford F-150 Lightning, the first electric F-150. Early demand for Ford’s F-150 Lightning, a full-sized electric pickup truck, is so strong that Ford Motors has doubled its production target ahead of the 2022 launch. No surprise here, the F-150 is the most popular truck and the price is reasonable at a \$41,699 base price. Reuters reported on Monday [\[LINK\]](#), that Ford’s original annual production target was 40,000 trucks, but is now targeting to produce 80,000 trucks by 2024. While demand was uncertain for individuals, commercial customers have been pushing for electric trucks and vans to reduce their carbon footprints. Ford released a statement, saying “We are excited with customer demand for the F-150 Lightning and already have 120,000 customer reservations, and we will continue to look for ways to break constraints and meet customer demand”.

Ford doubles production targets for EV F-150

Twitter – Look for our first comments on energy items on Twitter every day

For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [\[LINK\]](#). We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren’t just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

@Energy_Tidbits on Twitter

LinkedIn – Look for quick energy items from me on LinkedIn

I can also be reached on LinkedIn and plan to use it as another forum to pass on energy items in addition to our weekly Energy Tidbits memo and our blogs that are posted on the SAF Energy website [\[LINK\]](#).

Look for energy items on LinkedIn

Misc Facts and Figures.

During our weekly review of items for Energy Tidbits, we come across a number of miscellaneous facts and figures that are more general in nature and often comment on sports.

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Final round today for Connors & Hughes to try to make it to FEDEX final

The final round of the BMW championship is today and it looks like we will only have one Cdn golfer in the FEDEX Cup final 30 next weekend. Corey Connors looks to be in solid position at 23rd going into the final round to make it the top 30. But being that far back makes it impossible to win the big \$15mm. Mackenzie Hughes looks to be too far back at #64 for even him to make it. Last year, Mackenzie started the playoffs in #52 and made to #14 at the end. Regardless, both golfers continue to have great years, compete higher in the majors and moving up and to the right on their career charts. I had the golf on in the background most of this afternoon while working on the Energy Tidbits memo and didn't see one shot of either Corey or Mackenzie. What is about the NBC coverage that they just don't show our Cdn golfers?

National Burger Day was Friday, wishing we had White Castle in Canada

Friday was National Burger Day, which other than Harvey's always brings to mind White Castle "sliders" in the 70s. White Castle always shows up in comments on National Burger Day as it is the oldest fast food chain in the world is the White Castle franchise that first started in 1921. It still isn't well known in outside the Midwest and Mid-Atlantic. But being in college in St. Louis in the early 70's, we regularly made food runs to White Castle. White Castle was known for three things. The buildings looked like some tacky white stucco castle, the locations tended to be in not so nice neighbourhoods that were nice in the 40's and 50's, but not in the 70's, and most of all, for its 10 cent burgers that we would order by the sack of 10 burgers. They actually called it a sack. Even in the early 70's, that was cheap. White Castle didn't know it, but they were ahead of their time as their 10 cent burgers were small and they were "sliders" but weren't called that in the 70's. In the 70's they were called burgers. However, they are now called "sliders" and are still sold by the sack. Wikipedia has a good history of White Castle. [\[LINK\]](#)

Robert F. Kennedy's assassin, Sirhan Sirhan, granted parole

On Friday, California's parole board granted parole to Sirhan Sirhan after rejecting parole on 15 prior occasions, the latest being 2016. Interestingly, 2 of RFK's surviving 9 children support the parole, while 6 opposed parole. It will now be up to Gov Newsom to decide if he will approve the parole. RFK was mortally shot shortly after winning the California primary while running for the Democrat President nomination. He was shot by Sirhan Sirhan around midnight on June 5, 1968 and died shortly thereafter on June 5. Democratic Presidential nomination campaigns were hugely different in the 60s with the vast majority of states not having primaries. RFK had just won the biggest primary. His campaign was extremely different than any others in that he rallied the support of African Americans, Latinos and other minorities. I can't help but wonder what would have happened if he had gone on to win the Presidency in 1968. Don't forget, it was only two months earlier that Martin Luther King Jr. was assassinated.

NFL great Rosey Grier was one of RFK's bodyguards

There was always a very visible reminder of African American support for RFK with NFL great Rosey Grier being one of RFK's bodyguards. Most of the pictures including on RFK's victory speech in California just before his assassination show big tough Rosey Grier in the background. Grier had just finished his NFL career, he was all pro and was part of the famous Los Angeles Rams "Fearsome Foursome" defensive line along with Deacon Jones, Merlin Olsen and Lamar Lundy. Grier

suffered a career ending torn Achilles tendon in 1967. Below is the picture of RFK on his California primary victory with Rosey Greer towering over others.

Figure 43: RFK June 5, 1968 with Rosey Grier at back



Source: Robert Riversong

Rosie Grier reminds how free agency changed sports team images

As I wrote Fearsome Foursome when talking about Rosey Grier, I couldn't help think how free agency has changed sport team images. Free agency meant that sport teams in all sports no longer had control over a player's entire career. They didn't have to worry about losing a player to free agency but it also meant they couldn't keep together core groups of star players together for extended periods. And that ability has to be why we no longer have the sport team images of pre free agency. Rosey Grier was part of the Fearsome Foursome. Around that time another famous NFL defensive line was Minnesota Vikings had the Purple People Eaters starting four all pros – Alan Page, Carl Eller, Jim Marshall and Gary Larsen. In the 70's the Pittsburgh Steelers had the Steel Curtain defensive line – “Mean” Joe Greene, L.C. Greenwood, Ernie Holmes and Dwight White. NHL had its famous forward lines in the 70s”. The Buffalo Sabres “The French Connection” of Gilbert Perreault, Rick Martin and Rene Robert. The New York Rangers had “The GAG (Goal-a-Game) Line of Jean Ratelle, Vic Hadfield and Rod Gilbert. And who could forget the Philadelphia Flyers of the 70s being the Broad Street Bullies featuring Dave (Hammer) Schultz, Bob (Hound) Kelly, Don “Big Bird” Saleski, and Andre “Moose” Dupont. The NBA had the Los Angeles Lakers “Showtime” in the 80's with Magic Johnson and Kareem Abdul Jabbar as the stars. There are many other examples, but the point is that the difficulty for all pro sports teams to retain their top players means that marketing has to be put on individuals or on the team in total.

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